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Inside Dope

By GEORGE F. TAUBENECK

Learn to live and laugh — thus delay your epitaph

Stories of the Week
Philosophy of the Week
Explosion? Who Cares?
How To Keep Your Most Precious Asset
He Wants To Feel He Is Appreciated
Simply, It's the American Spirit
What To Do About It

Stories of the Week

Fellow who'd been in an auto collision with a woman driver was advised to settle the case out of court.

"You see," finger-tipped his attorney, "it's your word against thousands of hers."

Thunder and lightning crackled around the house. Mother dashed upstairs to comfort her wee one.

"What," demanded the child, "is Daddy doing to the TV set this time?"

Philosophy of the Week

You can't always pick your neighbors, so you have to learn to live with them, as you do with your relatives, and with the weather.—IHRE FREUND.

Many a decision has been altogether correct in view of the information at hand when made, only to be shown false in the light of further knowledge. Be sure you have the right data about a subject before leaping to a conclusion. You cannot bake good bread with bad flour, and you cannot make a good judgment on the basis of poor information.—JOHN M. WILSON, Vice President, National Cash Register Co.

The internal revenue service has worked out an emergency system for collecting our income tax even in case of a hydrogen bomb attack. That was the one thing I had been worrying about. —BILL VAUGHAN.

The greatest victory obtainable in this life is that of filling the possibilities of personality, and the greatest defeat is that of failure in this direction— G. CAMPBELL MORGAN.

Explosion? Who Cares?

Like most American citizens "Dope" has been proud of J. Edgar Hoover's FBI (Federal Bureau of Investigations). Vaguely we felt and believed it was a super-efficient Dick Tracy type organization beyond reproach.

Now we aren't so sure.

(Concluded on Page 8, Col. 1)

Westinghouse Has 15 Package Units for '57

STAUNTON, Va.—Featuring flexibility, the broad 1957 line of Westinghouse package air conditioners will offer color styling and new "Match-Master" units "individually tailored to meet local weather conditions and individual home requirements," it was announced here.

Bruce D. Henderson, vice president and division manager of the Westinghouse air conditioning division, said the new line, which was recently introduced to Westinghouse distributors at Hot Springs, Va., "includes nine all new air-cooled residential air conditioners, three all new water-cooled residential air conditioners, and three all new commercial air conditioners, making a total of

(Concluded on Page 5, Col. 1)

Kelvinator Has 'Super Shelf' Refrigerators

DETROIT—Kelvinator's 1957 line of refrigerators, spearheaded by convenience and styling features of the "Foodarama," introduces new tilt-out door crispers, new "super shelf," and increased fresh food storage area, plus eight custom colors available in every model.

The nine-model line, ranging from the 16-cu. ft. Foodarama to an 8.2-cu. ft. "Space Saver" model, was announced by E. B. Barnes, Kelvinator general sales manager. All models have been designed for "store easy — see easy reach easy" convenience.

"Since the unique Foodarama was introduced two years ago, it has been the style leader for all Kelvinator refrigerators," Barnes said. "New tilt-out door crispers, a big capacity super shelf, and twin 'Handi-chests' are new major features.

"The new super shelf goes a

(Concluded on Page 29, Col. 1)

B-W Air Brake Names Haag To Manage Auto Refrigeration

ELYRIA, Ohio—Appointment of Frank A. Haag as manager of automotive refrigeration of Bendix - Westinghouse Automotive Air Brake Co. here has been announced by D. S. Kimball, Jr., vice president and general manager.

F. A. Haag

Haag will be responsible for engineering, marketing, and application engineering of refrigerant compressors and related

(Concluded on Back Page, Col. 5)

Want to know what refrigeration equipment small city food merchants are actually using? The NEWS peeked into every food store in Bristol, Va.-Tenn. What did we find? See page 22.

Amana Room Units Offer Fabric Front To Match Decor

CEDAR RAPIDS, Iowa — Room air conditioners with a decorator fabric front that may be replaced to match any decor, "wall-thin" models 15½ in. deep and 17 in. high, and two 1-hp. units that operate on 115-volt lines highlight the 1957 air conditioners introduced recently by Amana Refrigeration, Inc.

Also featured in the four lines of 13 air conditioners are three 7.5-amp., ¾-hp. room units "that consume 30% less electricity than conventional models," a 2-hp. room air conditioner, and two "easy and economical to install" central-system air conditioners.

The new models were presented at the firm's annual distributor meeting held here.

At the same time Amana introduced three Deepfreeze chest freezers, "made only by Amana," marking the return of the Deepfreeze name to the market after an absence of nine months. Amana acquired Deepfreeze in June, after the Motor Products Corp. division ceased manufacturing operations in March.

Amana also introduced its four restyled 1957 upright freezers, two freezer-plus-refrigera-

(Concluded on Page 33, Col. 1)

Wampler Sees Cooling Sales At Peak $3 Billion In 1956

• • •

Carrier Introduces Compact Packaged Low-Cost Heat Pump

SYRACUSE, N. Y.—A new packaged heat pump, which the company said is so designed as to cut both first cost and operating cost for such equipment and to reduce space needed indoors for the installation to a minimum, has been announced by Carrier Corp.

The packaged heat pump "Weathermaker" which uses outdoor air as a source of heat is divided into two units, with an indoor unit little larger than a room air conditioner. The "inside unit" can be installed in an attic, basement, or top of a closet. The condensing unit section will be placed in a special cabinet and installed outside of the building.

At the press conference a new engineering facility for the development and testing of unitary equipment, built at a cost of $4 million, was dedicated, and Cloud Wampler, Carrier board chairman, declared that capital expenditures in the amount of $30 million will be made by Carrier over the next two to three years.

The new engineering facility to be dedicated is the first of three to be built. Also under construction for completion in 1957 are a Research Center for advanced study of new techniques, methods and materials in air conditioning, refrigeration and related fields, and a labora-

(Concluded on Page 4, Col. 1)

SYRACUSE, N. Y.—Declaring that the air conditioning industry in 1956 will break all previous records for the seventh consecutive year with a total retail volume somewhat in excess of $3 billion, Cloud Wampler, chairman of the board of Carrier Corp., predicted at a press conference last week that the industry would do a $3.5 billion volume at retail figures in 1957, and then reach $5 billion by 1961.

Wampler offered the following estimates of retail dollar volume for the various divisions of the air conditioning industry in 1956:

Room air conditioners: 1,550,000 units with a total value of $426 million. Central residential air conditioning systems: 175,000 units with a total value of $262 million. Self-contained equipment (other than residential) $215 million. Applied or built-up systems, $1,048,000,000. Heating equipment adaptable to air conditioning, $638 million. All other, $575 million. Total, nearly $3.2 billion.

For 1957, said Wampler, the

(Concluded on Back Page, Col. 1)

NWAHACA Program Draws Dealers

CINCINNATI — With a program aimed specifically at the dealer, the National Warm Air Heating and Air Conditioning Association broke attendance records and saw a 50% increase in dealer participation when its 43rd annual convention was held at the Netherland Hilton hotel here Nov. 28 and 29.

Sales methods and markets dominated the talks presented during this two-day meeting, but the association announced that the success of its first technical conference held last May has encouraged it to schedule another for next year in Cleveland on May 1 and 2.

At the Cincinnati sessions dealers heard a preliminary report on du Pont's recent survey of residential air conditioning, the market for zone control in split-level and other type

(Concluded on Page 18, Col. 1)

Raufeisen To Head B&G Compressor Div.

MORTON GROVE, Ill.—Bell & Gossett Co. has announced that Joseph Raufeisen will head up engineering for a new Refrigeration-Compressor Div.

This new division was created to enable Bell & Gossett to produce its own refrigeration compressors.

Raufeisen will have full charge and responsibility for design, development, and production. He graduated from the Swiss State university in Zurich and in Switzerland was en-

(Concluded on Back Page, Col. 5)

BEHIND PAGE ONE . . .

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N. Y. Proposes Smoke Alarm for Air Conditioners; Oregon Bill Would Have Installation by Plumbers

BOSTON—The air conditioning industry continues to be the target for a wide variety of restrictive legislation at state and local levels, it was revealed at the "Field Installations Problems" conference which was held during the recent ASRE meeting here.

In New York City, a proposal has been made that every air conditioning system be equipped with some sort of a smoke detector and alarm device.

A bill introduced in the Oregon state legislature would require that every installation of air conditioning be made only by firms holding a plumber's license.

Educating Builder, Public, Installer on 'Adequate System' Deemed Vital by ASRE Residential Air Conditioning Forum

BOSTON—If those attending were expecting any real fireworks to develop out of the forum "Pros and Cons of Air Heating and Cooling Systems vs. Liquid Heating and Cooling Systems for Residential Applications," at the ASRE convention here, they were doomed to disappointment, but the forum did develop some thought-provoking discussion on certain phases of residential air conditioning practices.

In the ASRE forums, those participating are encouraged to express ideas and arguments fully and freely, as there is no direct quoting of the participants in any reporting of the forum.

The following are some of the principal points made:

Air heating and cooling systems were generally conceded to be lower in first costs, but a wet system advocate said that "true" cost comparisons should be made in terms of "Owning Cost" which he said is made up of the following five elements:

1. First cost
2. Operating cost
3. Life expectancy of the equipment
4. Maintenance costs
5. Results in terms of owner satisfaction.

In the matter of operating expense, on the cooling side, there is a theoretical advantage in that the same condensing unit might produce a 42° dry expansion coil temperature, and a 46° chilled water temperature, thus giving the air-cooling system a slight advantage in temperature difference.

However, the theory was propounded that the water chiller coil would be somewhat more efficient, thus about drawing the matter of operating costs to a stand-off.

On the other side, it was conceded that the use of a water pump for the water chilling system would be an extra factor in operating cost. Balanced against this, said the advocates of "wet" systems, is the fact that in some wet systems it is possible to have individual room control, or zone control, which can cut operating costs.

There was some discussion of the possibilities in the use of thermostatically controlled air distribution registers for greater efficiency and reduced costs in air heating and cooling systems, but it was pointed out that thus far the public had seemed disinclined to pay the necessary added cost for this.

The big problem, both sides of the question seemed to agree, is to educate the builder, the public, and the installer on purchasing and installing systems that are adequate to do the job —no matter what type they are.

"We've got to get the salesman educated too," one of those attending the forum commented. "Consulting engineers don't cut much of a figure in this business —not many of them have bothered to learn much about it— and so most of the engineering in the field is being done by the contractor, or more likely by his salesmen."

Another point brought up in the forum discussions was the matter of how important the close control of relative humidity and air motion may be in the matter of the comfort of occupants of a conditioned area.

The general conclusion of this discussion was that recent experiments and study indicate that most people are comfortable over a much wider range of temperature and humidity conditions than that established by the so-called "comfort zone" conditions set up some years ago.

The point was also made that perimeter conditions and wall radiation effect are being given more consideration in terms of their importance to comfort conditions.

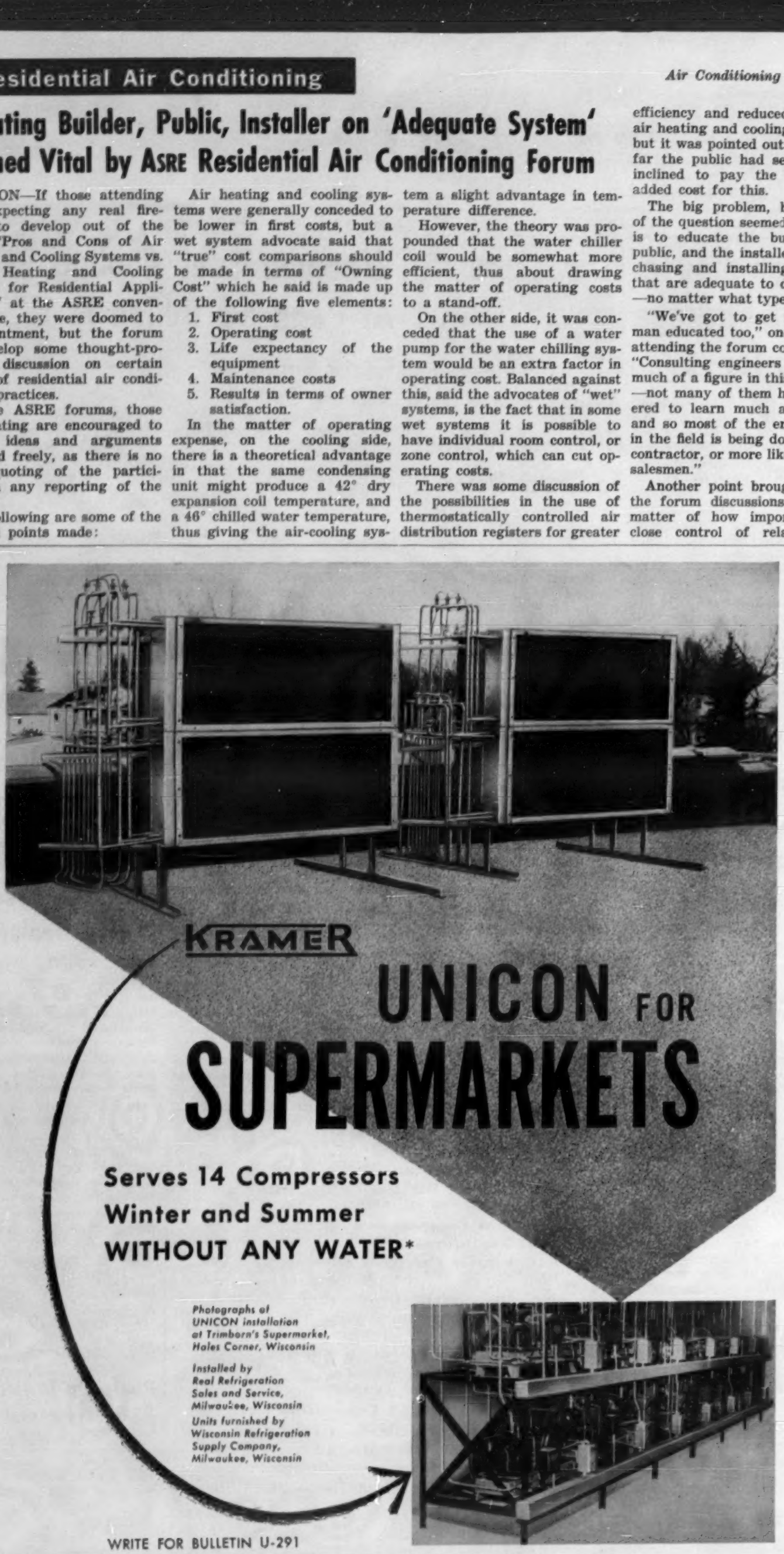
A wet system advocate made the claim that people who have lived with both the central forced air type and the wet type systems declare that they have lived at greater comfort in lower temperatures with the wet type system.

The question was raised "What's the best method of cooling a residence when a wet system is used?"

Here the consensus seemed to be that the best system would be the one that best fit the particular job. In some instances it might be individual room convectors, blowing over chilled water in the piping in the room. In other cases it might be a simplified plenum-and-duct arrangement, with the air unit having chilled water coils.

One of the forum participants declared that a dry expansion air cooling system permits the use of reheat in humidity control, a factor that can't be accomplished in the wet system without going to considerable extra expense.

A spokesman from the TVA area discussed the role of electric heating. For complete residential air conditioning, he said, electric heat can be used in combination with a central type air cooling system, or with in-wall room cooling units. And electric heat provides a perfect "reheat" method of humidity control.



American Coils To Move Entire Plant, Offices

NEWARK, N. J. — American Coils Co. will move its entire plant and executive offices from here to a new ultra-modern building now under construction in Farmingdale, N. J., Michael Parcaro, president, announced.

American Coils manufactures an extensive line of year-round packaged air conditioners including ACI "Comfortaire" heat pump. It also makes several sizes of packaged water chillers and forced draft cooling towers.

While no definite date has been set for occupancy of the new building, Parcaro said that he expects the building to be ready before the end of the year. Key personnel are expected to accompany the firm to its new location.

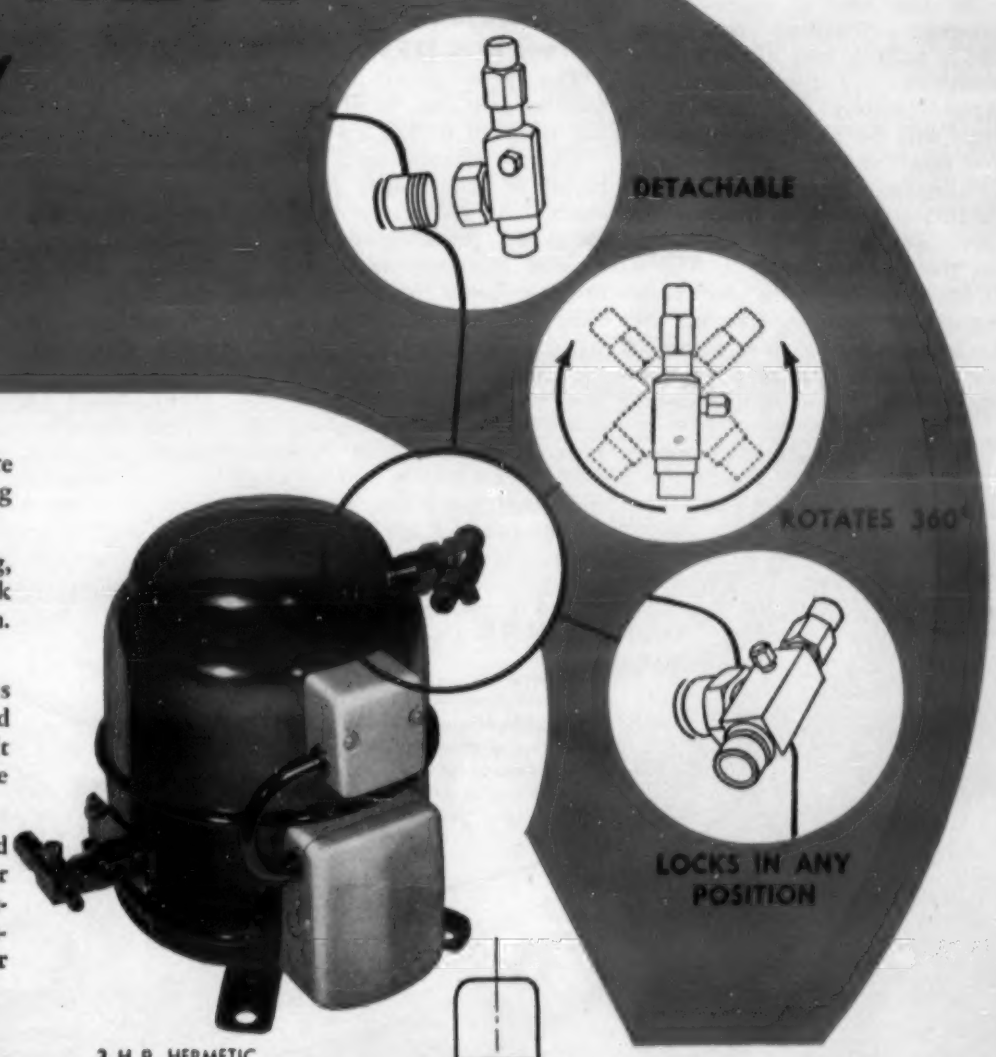
The single story structure will contain 63,000 sq. ft. of manufacturing, office, shipping, and receiving space. The building will be fully air conditioned and heated with year-round self-contained-type heat pumps.

Reason for the move, according to Parcaro, is the company's desire to be able to expand to meet the growing market for heat pumps and packaged air conditioners.

For more information about products advertised on this page use Information Center, page 20.

NEW ROTALOCK VALVE

adds Maximum Flexibility to installation of Tecumseh air conditioning compressors



3 H. P. HERMETIC COMPRESSOR

Rotalock is a new type of detachable valve which answers the trend toward more flexible production of air conditioning systems by permitting the positioning of suction or discharge connections at any angle throughout 360°.

Rotalock may be set at any angle to correspond with the direction of the tubing, eliminating short or compound bends. Once this angle is determined, Rotalock may be locked into position for maximum ease of installation in the system. This angle may be changed or adjusted as necessary.

The new Rotalock valve will have approximately the same overall dimensions as the old valves. Most important the working dimensions have been improved considerably. This is accomplished mainly by relocating the gage port so that it is at right angles to the valve body. In this position it is more easily accessible without adding to the overall dimension.

Tecumseh air conditioning compressors now provide an easy, economical method of meeting individual customer's requirements. By ordering one compressor for all applications the customer may keep inventory down and adjust production as needed. Further savings are possible due to the time saved, both in factory and field installation. In addition, the new Rotalock represents a major saving in original cost over flange valves.

NEW flexible compressor design

SPEEDS PRODUCTION -- LESSENS INVENTORY

ONE OVERLOAD FOR AIR AND WATER (EXCEPT 5 H.P.)

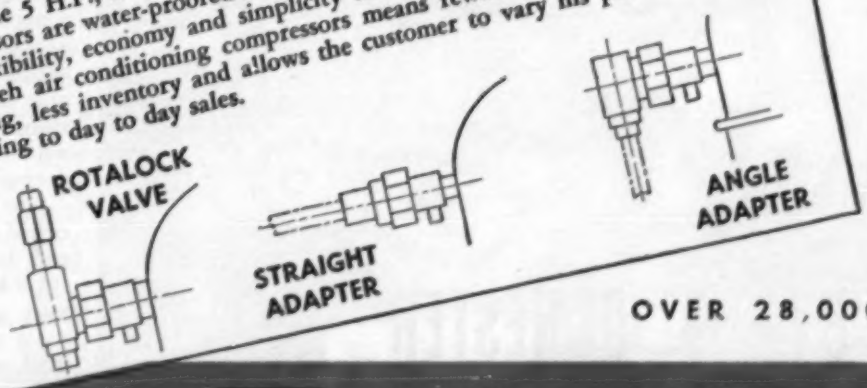
ONE BASIC SPUD FOR ALL TYPES OF CONNECTIONS

To change from a valve to a tube, tube to valve, or even to different sizes of valves or tubes it is no longer necessary to order a new compressor. Tecumseh customers will now only have to order the component parts they need and install them on compressors in their plant. No delay in changing, no excess inventory! Tecumseh Rotalock provides the answer.

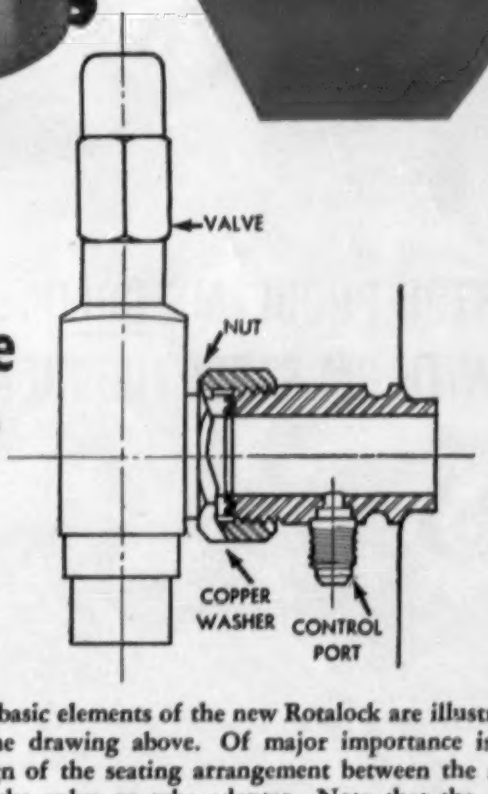
Each compressor of this type is now equipped with universal spuds welded to the housing in place of present suction and discharge valves or tubes. This basic connection will take any normal size valve or tube used by our customers. One bill of material covers the compressor and valve or tube connections or adapters are ordered separately as component parts. Three types of connections for either the suction or discharge side are then possible according to the wishes of the customer. These are illustrated below.

To further eliminate ordering, production, and inventory problems, these same compressors can now be used for air or water cooled applications. In all cases except the 5 H.P., a single overload handles either. In addition, all of these compressors are water-proofed and corrosion resistant.

The flexibility, economy and simplicity connected with the use of these new Tecumseh air conditioning compressors means fewer bills of material, easier ordering, less inventory and allows the customer to vary his production lines according to day to day sales.



positive pressure seal



The basic elements of the new Rotalock are illustrated in the drawing above. Of major importance is the design of the seating arrangement between the spud and the valve or tube adapter. Note that the spud has a groove machined around the circumference of the face. A corresponding but smaller ridge is machined on the face of the valve or adapter. By inserting a soft copper washer between these faces, a tongue and groove seal is formed by the pressure of the nut. As pressure is applied, the washer is forced into the groove by the ridge on the valve, resulting in a positive seal around the full circumference of the face. Further, the seal will have equal pressure on all areas. Note that as more pressure is applied, the greater will be the sealing effect. This principle eliminates all possibility of leaks due to crimped gaskets, loose bolts, or imperfect thin gasket materials.

OVER 28,000,000 COMPRESSORS IN USE TODAY

The World's Largest Producer of Compressors for the Refrigeration Industry

TECUMSEH PRODUCTS CO.

Tecumseh, Michigan
Marion, Ohio

EXPORT DEPT. - P.O. Box 2230, 24530 Michigan Ave., W. Dearborn, Michigan

New Carrier Heat Pump--

(Concluded from Page 1, Col. 4)

tory for development of "big" air conditioning systems.

In the capital expenditures program, Wampler said that $16.5 million has already been assigned to specific projects. Approximately $10 million of this will be spent in Syracuse for new research, development, production, and administration facilities and the balance for the construction of a new plant on the Pacific Coast.

In addition to its new packaged heat pumps, Carrier also is introducing a new series of assemblies for "applied" or field-engineered heat pump systems for larger buildings.

The packaged heat pump is being introduced initially in a 5-hp. model, and it was stated that the company will shortly begin production on a larger size and will eventually manufacture smaller units.

Available In Sizes From 10 to 125 Hp.

The heat pump assemblies will be available in sizes ranging from 10 to 125 hp.

Carrier officials said the heat pump Weathermaker has been engineered on a new "Climate-Balance" principle to achieve greater efficiency and lower operating costs over the whole range of normal heating and cooling operation.

William McGrath, chief engineer of Carrier's Unitary Equipment Div., in describing the new Climate-Balance principle said that the heat pump could be considered a desirable way to do the heating job wherever the refrigeration required for cooling can also supply a large portion of heating needs and where fuel-electric costs are comparable.

In regard to types of structures where heat pumps would find a market, McGrath declared: "We anticipate at least as many installations in commercial establishments as in residences because a part of the heating in a store or office is already supplied by electrical means through lighting which produces heat.

"The heat pump Weathermaker with its two-piece design permits complete flexibility of installation and a consequent reduction in installation cost in many cases," McGrath stated. "Since the portion of the heat pump requiring outside air is located exterior to the structure, it is no longer necessary to install ductwork inside the building to bring in the air from which heat is taken. Thus sheet metal costs and any noise incident to moving large quantities of air can be greatly reduced."

SMALL indoor unit of Carrier Corp.'s "Heat Pump Weathermaster" for 1957 is little larger than a room air conditioner but does entire job of year-round air conditioning for home or small commercial building. It is designed to reduce first cost and allow choice of installation possibilities. Outdoor unit is at left.

For defrosting of the coil of the "outside unit" in the packaged heat pump, a control actuated by the outdoor temperature as it drops to the point where frost is likely to accumulate on the coil, operates in conjunction with a timer to reverse the system briefly to clear the coil of frost. The control also starts up an electric resistance heater which keeps the inside temperature from dropping.

The coil in the outside unit is of slanted design, so that the ice will drop off easily, and the drainage is readily handled.

May Use Air, Water As Heat Source

The new heat pump assembled systems present many novel possibilities, McGrath said. They may use either air or water as a source of heat.

It is characteristic of heat pumps that every unit of electrical energy used will produce a considerably greater amount of heat energy, he stated, since its operation is basically that of employing electro-mechanical energy to take heat from air or water rather than simply converting electrical energy to heat.

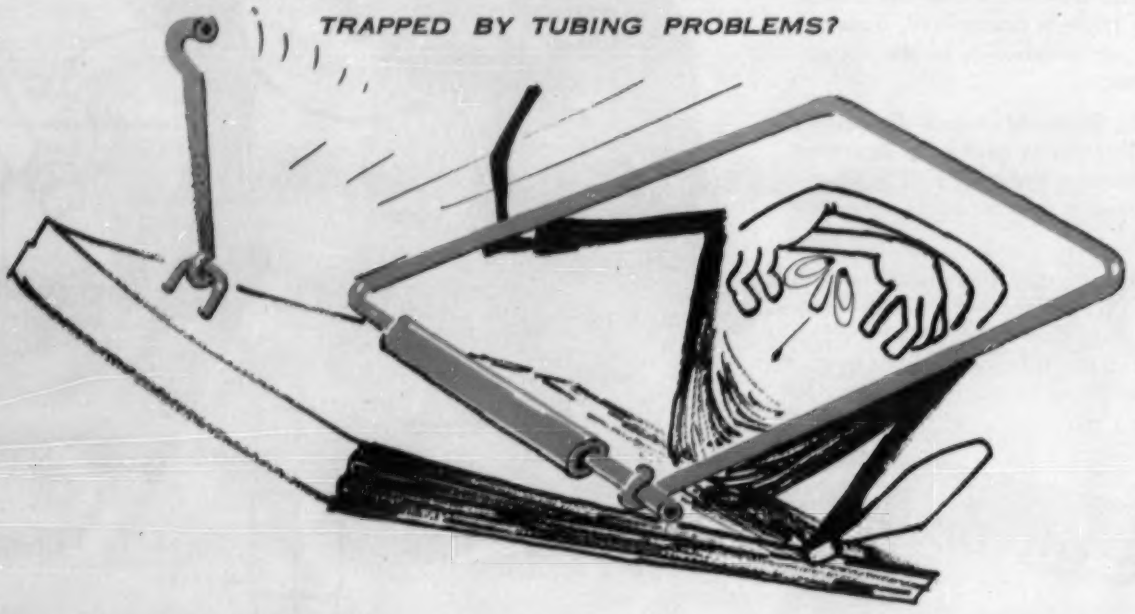
Thus an air source heat pump may deliver nearly three units of heat energy for every unit of electrical energy. With water this coefficient of performance may increase to five to seven units of heat per unit of electricity.

The biggest market for water-source heat pumps will be in areas where there is a cheap supply of water readily available and easy to dispose of and where the water is of a type which will not cause scale or corrosion.

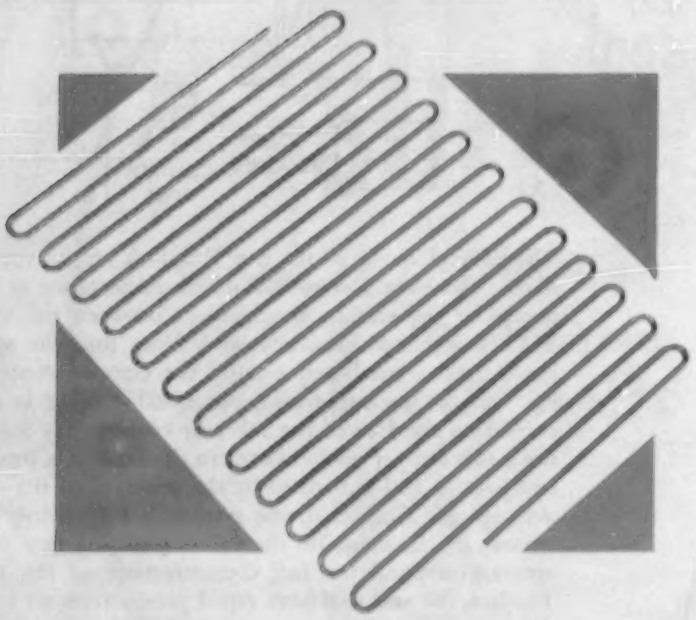
One interesting approach called a "run-around" system can be used with many block-type buildings, he explained. In such structures, interior spaces may need cooling in winter as well as summer since they are not exposed to the cold weather outside. The heat extracted by the refrigeration system from these spaces may then be pumped to exterior offices where it provides heating.

The same approach can be used in many factory-office combinations.

TRAPPED BY TUBING PROBLEMS?



STOP PROBLEMS COLD...
WITH GM STEEL TUBING AND UNEQUALED FABRICATION FACILITIES!



Temperatures stay where you want 'em with coils and condensers from Rochester! The industry's finest equipment forms, fits and fabricates these and other intricate assemblies for America's major manufacturers. Rugged, reliable GM Steel Tubing performs its way into more new products every day. Tubing quality, engineering capability and production facility form a cost-cutting, schedule-saving line-up that's ready to go to work for you! Call your Rochester Products Sales Engineer or write us direct.

GM STEEL TUBING BY ROCHESTER PRODUCTS

ROCHESTER PRODUCTS DIVISION OF GENERAL MOTORS CORPORATION ROCHESTER N.Y.

For more information about products advertised on this page use Information Center, page 20.

AVAILABLE in a variety of color combinations are Westinghouse "Flex-Master" residential air conditioners for 1957.

DESIGNED to meet cooling needs of "any home," are Westinghouse "Match-Master" air conditioners for 1957.

Westinghouse Line--

(Concluded from Page 1)

15 new packaged air conditioner models."

Henderson said the air-cooled Match-Master models include 16 combinations which range in capacity from 18,000 to 70,000 B.t.u. per hour in steps of 3,000 B.t.u. per hour. The broad choice of capacity ratings is made possible by the use of interchangeable coils and condensers, he stated.

All combinations have been performance tested under the varying conditions of humidity found throughout the country, it was pointed out.

NOISE LEVELS CUT

Henderson said that compressor modifications and other engineering advances in the 1957 models have reduced noise levels by as much as 50%. The compressor section in all models has been isolated from the airstream by 1½ in. of aluminum-backed fiber glass insulation. In order to minimize vibration, all working parts in the self-contained units are mounted on a separate frame of all-welded construction.

HAVE INTERCHANGEABLE PARTS

"This concept of interchangeable components," he said, "means that we will be able to 'custom tailor' an air conditioning unit for the individual home, taking into account both the humidity and temperature conditions. It will enable us to select the most favorable coil-condenser combination for any area of the country, whether it is a wet-heat or dry-heat area."

The air-cooled Match-Master models "can be easily installed by the insertion of an evaporator coil in existing furnace ductwork," it was stated. "This coil is then connected to an air-cooled condensing unit which can be placed in a number of locations both within and outside the home."

Henderson said that Westinghouse in 1957 will also offer "Choose-'N-Change" color accessory panels and "a compact, low-cost cooling unit that can be installed practically anywhere in the home."

The entire 1957 line has been designed by Peter Muller-Munk Associates to represent modern, functional styling with "eye appeal," it was indicated.

Choose-'N-Change color panels will be featured in the Westinghouse "Flex-Master" series of home cooling units and the "Style-Master" line of commercial-size air conditioners.

Both the Flex-Master and the Style-Master are free-standing units which can be equipped with water-cooled or air-cooled condensers.

Finished in a beige and charcoal color combination, they are also available with accessory color panels of penrod tan, channel green, sea-mist blue, and chestnut brown. Trim plates of anodized aluminum, gold, and bronze can be matched with the various color panels.

The Flex-Master residential models range in capacity from 30,000 to 110,000 B.t.u. per hour and can be combined with any existing heating system to give year-round air conditioning, it was noted.

Style-Master commercial models are also rated from 30,000 to 110,000 B.t.u. per hour and can be used either as free-standing units, or connected to ductwork to cool more than one area.

Included in the 1957 line is a compact home-cooling unit called the "Ease-Master," specifically designed to meet the cooling needs of smaller homes.

"The Ease-Master is engineered to cool the average five-room home in extra-hot zones, and up to seven rooms in more temperate climates," it was stated. "Completely air-cooled, the unit requires no basement space, can be installed almost anywhere in the home, and can be connected to any existing heating system.

"These units have been engineered to make 'Do-It-Yourself' installations practical."

Ease-Master models are available in two sizes. The KU-301 measures 30 by 36 by 20 in. and is rated at 15,000-19,000 B.t.u. per hour. The KU-401 has a capacity of 30,000-35,000 B.t.u. per hour and measures approximately 30 by 54 by 25 in.

1906
In 1906 . . . the year the first Brunner-engineered product appeared . . . the magic lantern was an engineering triumph popular in the parlor, church and meeting hall.
TODAY
A half-century of Brunner engineering experience is your assurance of a profitable future . . . with Brunner Refrigeration Condensing Units.
THE BRUNNER CO., GAINESVILLE, GA.
Brunner Manufacturing Co., Utica, N. Y.
In Canada:
Brunner Corp. (Canada) Ltd., Toronto, Ont.
BRUNNER-METIC Semi-Hermetic Refrigeration Condensing Units available in a full range of sizes from ¼ H.P. through 3 H.P. Complete line of OPEN-TYPE units from ¼ H.P. through 100 H.P.
50th Anniversary
BRUNNER

'Try Before You Buy' Freezer Rental Plan at Usual Monthly Payment Finds Many Convert to Ownership In Four Months

ELIZABETHTOWN, Pa. — Hawaiian Food Plan, Honolulu, Hawaii, has been successfully operating a freezer rental service for some time, the National Institute of Locker & Freezer Provisioners here reported in a recent "Business Builder" bulletin.

Designed To Boost Freezer Sales

Although the plan is designed primarily to stimulate freezer sales, Hawaiian Food Plan does have a genuine program for renting home units for a period of four months, it was noted.

Greatest asset of the plan, according to R. F. Harnish, secretary and general manager of the Honolulu firm, is that it allows his company to offer a bona fide "try before you buy" plan.

Although freezer rental is offered every day by the company, a relatively small number of freezers are put out on this basis, Harnish commented. This is "largely because the very sincerity of the offer lends such credence and stability to the program" that "all doubts" are dispelled from the prospect's mind.

Amount of rent charged by Hawaiian Food Plan is equal to the amount that would constitute the monthly payment on the same freezer had it been purchased outright. However, the renter does not pay the "usual" 10% down payment.

Included in the monthly rental fee is the amount of the regular carrying charge. Harnish feels that "charging anything less than this" would undermine food plan selling efforts. Furthermore, most customers, he said, interested in renting at this figure are almost sure to convert to actual ownership within the specified four months.

Rental Fees Credited If Renter Buys Unit

All rental fees paid within this period are credited to the renter for the purchase of the freezer should he convert within that period, it was explained.

When a freezer goes out on a rental basis, the renter is required to pay two months rent in advance (for the first and last months of the four-month period). The salesman who sold the rental agreement keeps half of this amount as his commission. Then, if he can convert the customer into a sale within the first 30 days, he is paid his full commission less the amount already paid him from the advance rent collected.

If the salesman converts during the second 30-day period, 5% is deducted from his overall commission. During the third 30-day period, the deduction increases another 5%, it was noted, and at the end of the fourth month the deduction reaches a maximum of 15%.

Object, of course, says Harnish, is to create an incentive for salesmen to convert renters as quickly as possible. For example, if the rental fee of a particular freezer is $20 a month, the salesman would collect $40 advance rentals and keep half, or $20, as his commission.

Harnish continued that if the commission for selling the same freezer totals $100, a conversion at the end of the first 30-day period, would be worth $80 to the salesman. (This is the regular commission of $100 less the $20 already collected).

During the next 30 days, a conversion would be worth $75 to the salesman, in the third 30 days he would get $70 for a conversion, and during the final period he would receive $65.

Knows She Is First, Only Owner

Hawaiian Food Plan rents only new freezers, Harnish remarked, and "we make a big show" of taking them out of the crate in the customer's presence. Then when a customer does convert to a sales contract, she is sure that she is the first, and only, owner of the freezer which she already has.

Harnish advises that perhaps "the greatest objection" to renting freezers, from the dealer's standpoint, is the amount of money it takes to support such a program. Hawaiian Food Plan controls its own financing and, therefore, "such a program is possible and profitable."

However, Harnish cautions that "unless conversions come through on schedule," the volume of rentals should be controlled or the results "could seriously undermine" the dealer's financial position.

For the benefit of those interested in a freezer rental program, here is the "Rental Agreement" contract which Hawaiian Food Plan uses:

RENTAL AGREEMENT

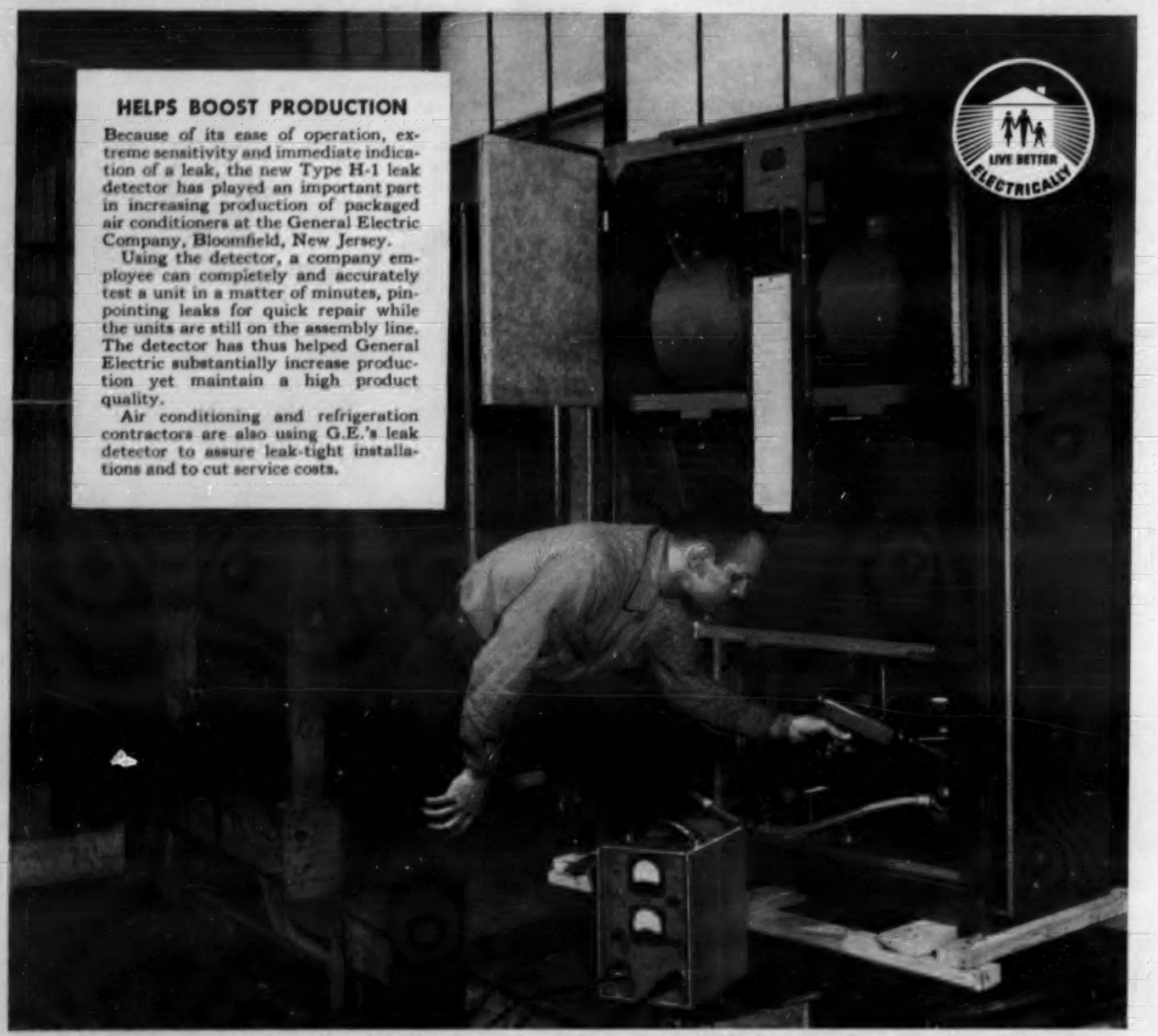
Subject to certain provisions enumerated herein, the undersigned renter agrees to rent the following property, complete with standard equipment and attachments as supplied by the manufacturer; viz:

Brand Name ..... Home Freezer
Model No. ..... Serial No. .....
Retail Price .....

The provisions of this agreement are as follows:

1. The renter shall pay Hawaiian Food Plan, hereinafter designated as **owner,** in the amount of ..... dollars ($.....) per month on or before the ..... day of each month.
2. The renter shall pay the owner the first and last months' rent prior to delivery of the freezer. The day the freezer is delivered will be considered the first day of the rental period.
3. The renter shall give the owner not less than 30 days' advance notice that renter wishes to discontinue renting the freezer, or, failure to remit a month's rent will automatically be considered a request for termination and the last month's rent paid in advance will apply. The freezer will be picked up by the owner when the final 30 days of this agreement has expired.
4. At any time within 120 days following delivery of the freezer, the renter has the privilege of purchasing the freezer covered by this agreement at the regular quoted retail selling price less all rental monies paid in to date, or, the total of the rental monies paid in may be considered as a down payment, providing they equal not less than 10% of the regular list price of the freezer, and the balance of the purchase price may be paid by means of a conditional sales contract as required by the owner.
5. The renter will keep the freezer on the premises to which it was originally delivered. Permission of the owner must be obtained before moving the freezer to any other location.
6. The renter shall keep the freezer in good condition and not use it improperly. The renter will be held responsible for all repairs required as a result of careless usage and negligence in his/her possession. The owner will be responsible for good mechanical operation during the rental period.
7. The renter shall be responsible for losses incurred by fire or theft, or carry adequate insurance to cover said losses.

Executed in triplicate, this ..... day of ....., 19.....
Witness .....
.....
Renter sign here
.....
.....
Address


HELPS BOOST PRODUCTION
Because of its ease of operation, extreme sensitivity and immediate indication of a leak, the new Type H-1 leak detector has played an important part in increasing production of packaged air conditioners at the General Electric Company, Bloomfield, New Jersey.
Using the detector, a company employee can completely and accurately test a unit in a matter of minutes, pinpointing leaks for quick repair while the units are still on the assembly line. The detector has thus helped General Electric substantially increase production yet maintain a high product quality.
Air conditioning and refrigeration contractors are also using G.E.'s leak detector to assure leak-tight installations and to cut service costs.
LIVE BETTER ELECTRICALLY

QUICK AND ACCURATE leak checks of equipment can be made on the assembly line as well as at customer's installation.

GENERAL ELECTRIC'S PORTABLE LEAK DETECTOR HELPS CONTRACTORS . . .

Make Jobs Leak-Tight; Cut Service Costs

Service repair reductions of 85% have recently been reported by a G-E Leak Detector user in Michigan who installs air conditioning equipment. Similar savings of time and labor can be yours when you use General Electric's Leak Detector to assure your customers a leak-tight initial installation of reciprocating, rotary or centrifugal compressors; household, commercial or industrial refrigeration systems. And you can handle service calls faster and more effectively during the busy summer months by using this simple instrument to "sniff out" troublesome leaks in installations which you service.

Existing light has no effect on the efficiency of your inspection procedure with the General Electric Type H-1 Leak Detector and even unskilled operators can find leaks so small that in 100 years, only one ounce of Freon* gas would escape.

A true leak signal is assured because the Type H-1 detector automatically offsets slow changes in background concentrations of halogen gases. Only a true leak of halogen gas causes a response. Leaks are indicated by an instrument dial as well as by a variable-pitch loudspeaker or earphones.

Readily portable, the unit weighs only 24½ pounds. It is well suited to use in your shop as well as for service testing in the field wherever alternating current is available.

For more information, call your G-E Apparatus Sales Office or write for bulletin GEC-233 to Section 585-55, General Electric Co., Schenectady 5, N.Y.

*Registered trade-mark of Kinetic Chemicals Division of E. I. duPont de Nemours & Co., Inc.

Progress Is Our Most Important Product

GENERAL ELECTRIC

For more information about products advertised on this page use Information Center, page 20.

Left to right: Don Wood, General Sales Manager—John Morrill, General Manager—Clyde Ploeger, Director of Engineering.

WE WANT YOUR COMPRESSOR BUSINESS!

Our name is Evansville Division of Bendix-Westinghouse Automotive Air Brake Company. We're a new name in the manufacture of refrigeration and air-conditioning compressors, but in manufacturing other types of compressors we've been a leader for many years.

We want your business and feel we're well qualified to handle it. Our product consists of a complete line of hermetic compressors and condensing units ranging in capacity from ¼ to 7½ H. P. They're designed for low- and high-temperature applications and offer several new exclusive features which have already resulted in substantial orders from some of the most respected names in the industry.

Our manufacturing facilities located here in Evansville, Indiana, are big, modern, well-staffed and well-tooled. We can handle any size order you can give us.

Our personnel know this business from over 33 years' manufacturing history in this field and are dedicated to carry out our main policy . . . to provide you with the finest products and best service available.

We hope to get acquainted with you soon.

NOT IN APPLIANCE BUSINESS

Neither this division nor the parent company—Bendix-Westinghouse Automotive Air Brake Company, Elyria, Ohio—has any connection with appliance manufacturing. Bendix-Westinghouse is a joint subsidiary of Bendix Aviation Corporation, Detroit, Michigan, and Westinghouse Air Brake Company, Wilmerding, Pennsylvania. EVANSVILLE DIVISION, EVANSVILLE 11, INDIANA.

EVANSVILLE DIVISION of

Bendix-Westinghouse

Automotive Air Brake Company

For more information about products advertised on this page use Information Center, page 20.

Inside Dope

By GEORGE F. TAUBENECK

(Concluded from Page 1, Col. 1)

On a recent American Airlines flight from Syracuse to Detroit, via Buffalo, our plane bumped down at Rochester. A pilot announced:

"The FBI reports a bomb may be aboard this plane. All passengers are ordered into the airport. You will assemble at the baggage counter, and carry with you all hand luggage."

So we did, and there we stood —in a tight little bunch—for nearly two hours while baggage was unloaded from our plane and three others. Meanwhile the number of interrupted flight passengers grew from 30 to almost a hundred. All of us were herded around this pile of baggage in which, it was rumored, was a time-bomb. Suspense was terrific.

Eventually Rochester uniformed police arrived, and examined each piece of luggage minutely. That required another hour — while all of us, plus throngs of the merely but inevitably curious crowded around the proceedings.

If a time-bomb had been planted in any of those suitcases, it could have killed at least 300 men, women, and children while we were waiting for inspection. Also, it might have wrecked the airport itself, several million dollars worth of equipment, and all the inspecting and guarding police officers in that area.

No cop seemed to have thought of that probability. They were trying to find a bomb —not prevent deaths. Fortunately no bomb was discovered.

Next day a few newspapers dismissed the event as "another crank call." Meanwhile hundreds of traveling schedules were disrupted. As one traveling salesman put it: "My wife will never believe this true story as to why I didn't get home tonight for our Anniversary."

All of us were forced to watch embarrassing revelations while each item of luggage was opened. Bottles in a priest's suitcase, for instance, were too obviously packaged to be medicine. ("Ahem," harrumphed the cleric, "Christmas present.")

And a young engineer protested violently against the opening of his suitcase, which contained a complicated (and apparently secret) electronics apparatus.

Biggest scare came when a cop felt a metallic cylinder wrapped in a pair of pajamas. He jumped about two feet. After elaborate precautions the suspected bomb turned out to be a can of pressurized shaving lather.

How To Keep Your Most Precious Asset

Employers lose much too much unaccounted (it doesn't show up in the financial statements) *money* every time an employe quits his job.

Depending on the worth of the employe who "quits in a fit" —or just fades away—such subsequent costs as "finding and training substitutes, attempting to replace men whose skills and experience are valuable (or whose customer relationships are deeprooted) becomes a more expensive task than is generally realized," according to AMA.

Also, corporate owners must pay extra charges for overtime work by those remaining employes who take over temporarily for the Missing Person. Additional budget-unbalancers: supervisors' lost time in training new personnel, breakage and spoilage by raw recruits in production departments, plus higher accident and unemployment insurance rates in most instances.

Lowered staff morale induced by a "quit" doesn't appear on the balance sheet. Yet, every time that happens other employes become restless.

All these previously identified emotional factors swell the exorbitant price of employe turnover. According to Pennsylvania university research, such costs to stockholders range from $36 up to $125,000 and more for a single resignation!

He Wants To Feel He Is Appreciated

Obviously employe turnover is an area of examination which should concern all business managers and stockholders. In that connection: Hidden reasons why employes quit jobs are revealed in a spanking new investigation by a Michigan research center. Its interviews covered all types of business from a 12-man shop to a giant automobile corporation. These findings reveal that, "unless an employe is permitted to retain a strong sense of personal responsibility for his job, he is apt to quit." His hope for personal "autonomy" includes:

(1) Believing that he is doing important work "for which his superiors pat him on the back occasionally."

(2) Trusting that his accomplishments will be evaluated fairly by bosses who "learn exactly what he is doing and how well."

Worst thing an employer can do is "ignore or overlook praiseworthy accomplishments," according to this report.

Another revelation: Attempting to attain unrealistic goals, employes to whom extra work is delegated frequently crack up under the strains and tensions. Often, unions step in, too, when a "speed-up" is suspected.

Simply, It's the American Spirit

"Some academic theorists assume that every designated employe will do whatever his executive orders, whether or not he has the ability, or whether or not his personal goals fit in with those presumed by his superiors.

"In contrast," those management surveyors maintain, "the trend in America generally, in schools, homes, and communities, is toward giving the individual greater freedom to manage his own life.

"These fundamental changes in American society create expectations among employes that employers will trust them, rather than bind them into an autocracy which presupposes that their experience, loyalty, and competence are insufficient to allow them freedom of self-management. Skilled employes should be allowed to decide what, when, where, and how they fulfill duties within areas of their assignments."

Those who quit so-called "permanent" jobs also confessed that their work was not considered so important as they would like it to be, that their bosses "chewed them out too much," blamed them for not accomplishing unrealistic "speed-up" standards or quotas, and that "personal achievements of which they were proud either were taken for granted or not paid for properly, promptly, and justly."

What To Do About It

Four-Point Program for Executives recommended:

"(1) Supervisors should satisfy natural human desires for personal recognition by praising good work—instead of criticizing constantly, like a nagging wife.

"(2) Managers should communicate *informally* with associates and subordinates on a friendly first-name basis. Stilted, impersonal, bulletin-board orders remind younger employes of regimented Army experiences which they detested.

"(3) Executives should remember that older employes may be sensitive about their seniority, and jealous of their prerogatives which they have earned through long-term contributions and loyalty.

"(4) Highest and most important task of executives, therefore, is to assay continuously and fairly the morale of valuable individual employes. If dissatisfaction is allayed in advance a costly accident, the loss of an irreplaceable key man, or even a strike may be prevented."

In sum, no matter what level of accomplishment or responsibility is involved, it seems that EVERY American citizen essentially believes in the Free Enterprise System, and wants to feel like a Free Enterpriser himself.

Cool Church

MONTGOMERY, Ala. — The new worship-educational edifice of Normandale Baptist church, providing more than 21,000 sq. ft. of floor space on two levels, held its formal opening recently. Worthington air conditioning equipment was installed by Bagwell, Smith & Adams, Inc.

If your prospect seems cold

suggest time payments

SELL ON TIME COMMERCIAL CREDIT PLAN

to close the sale

TODAY the demand on working capital is heavy. Preferring to keep their cash and usual lines of credit intact for current operations, more and more of your prospects will want to finance their purchases of equipment. Be sure your proposals are complete by including information about buying on the nationally popular COMMERCIAL CREDIT PLAN. To discover how COMMERCIAL CREDIT'S tailor-made Refrigeration Financing Plan can help you build prestige and close sales, call our office in your city or write COMMERCIAL CREDIT CORPORATION, 14 Light Street, Baltimore 2, Maryland.

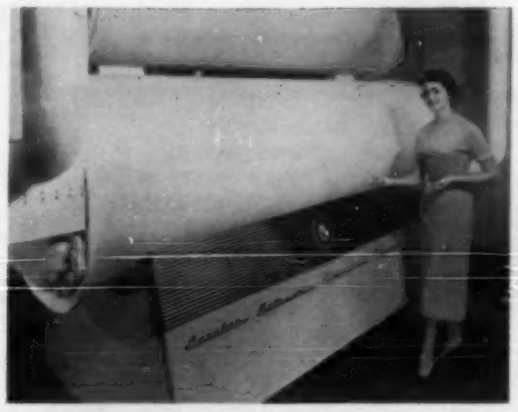
COMMERCIAL CREDIT CORPORATION • A service offered through subsidiaries of Commercial Credit Company, Baltimore . . . Capital and Surplus over $190,000,000 . . . offices in principal cities of the United States and Canada.

U.L. & A.S.M.E. WATER-COOLED CONDENSERS ¼ TON to 15 TONS and LIQUID RECEIVERS for EVERY REQUIREMENT

Write for our NEW Catalog

STANDARD REFRIGERATION CO.
332 S. Hoyne, Dept. C
Chicago 12, Ill.

For more information about products advertised on this page use Information Center, page 20.



SMALLER models of Carrier Corp.'s automatic absorption refrigerating machine with nominal 60 or 80 tons cooling capacity have been added to sizes providing 100 to 700 tons capacity. Electronically controlled by a "stop-go" pushbutton, time clock, or thermostat, the unit produces variable cooling as required.

60, 80-Ton Commercial Absorption Units Added To Carrier Cooling Line

SYRACUSE, N. Y.—Two new smaller sizes of Carrier Corp.'s automatic absorption refrigerating machines which use heat energy to produce cooling have been announced by the manufacturer.

The machines, previously available in a range of models developing 100 to 700 tons of capacity, will now be produced in 60 and 80-ton sizes as well.

"Introduction of the smaller models makes availabie for the first time the many advantages of the absorption cooling machine to a great number of stores, supermarkets, small office buildings, and light manufacturing concerns," Carrier stated.

Charles V. Fenn, vice president, Carrier Machinery & Systems Div., said the new units will incorporate the smart styling which was a feature of the larger machines introduced earlier this year.

COMPACT UNITS OFFERED AS SINGLE PACKAGE

The compact units will be available as a single package providing economical installation, according to Fenn.

The absorption machines have no major moving parts and use plain water as a refrigerant, he said. A lack of moving parts means minimum maintenance costs, it was stated. All of the items that might ever need to be replaced can easily fit into a businessman's briefcase, the Carrier executive noted.

"Its vibrationless performance and light weight has spearheaded a trend towards location of the machine rooms on the roofs of buildings, freeing interior space for storage, parking, or even extra office area," the announcement said.

AUTOMATICALLY ADJUSTS FROM FULL OUTPUT TO ZERO

"The machine is extremely versatile. It will adjust automatically from full capacity output down to zero load, with little loss in efficiency.

"Overloading cannot damage the unit since there are no moving assemblies to be harmed. If cooling beyond design capacity is signalled by the air conditioning system, the machine will continue to operate, delivering additional tons of refrigeration at a higher temperature level.

"Entirely safe, the machine can be started or stopped by pushbutton, time clock, or thermostat.

"Steam as well as such hot fluids as water, oil, or chemicals, can be used to generate cooling in this Carrier unit.

"Low-pressure or waste steam which might otherwise be exhausted to the atmosphere can be employed as the energy source for absorption equipment thus providing a free source of power for air conditioning.

"Where boilers are installed for winter heating they can be operated through the summer for cooling as well. Absorption machines are extremely practical where a low-cost fuel such as natural gas is available to produce steam or hot water," the firm said.

Catskill Resorts To Install $5 Million In Air Conditioning Units Within 3 Years

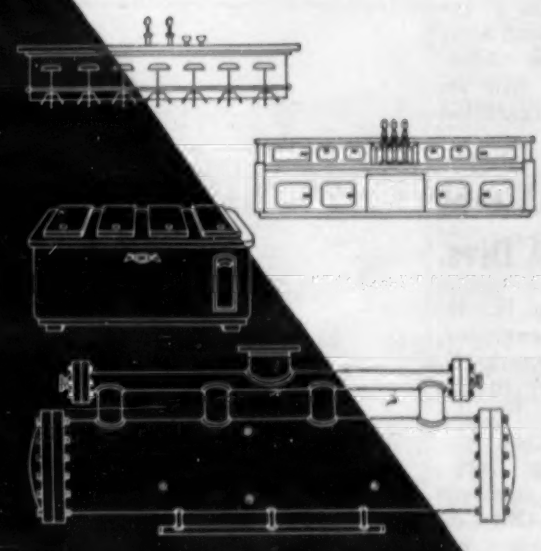
ALBANY, N. Y. — Latest county-wide innovation to lure customers to surrounding Catskill mountain resorts is air conditioning, according to State Commerce Commissioner, Edward Dickinson.

He said the larger hotels are already air conditioned while others expect to have equipment installed within three years at a cost of over $5 million for the cooling installations.

The county has 500 hotels with more than 80,000 rooms. Besides, it has 3,000 bungalow colonies in addition to rooming and boarding houses, tourist homes, and motels, the commissioner stated.

SAVE MONEY

keep your coolers from busting



prevent freeze-up with

ALCO

EVAPORATOR PRESSURE REGULATORS

They hold evaporator pressures to a predetermined point when the load changes. Available for any size water cooler—from drinking fountains to large industrial installations.

ENGINEERED for service for life

SEE YOUR ALCO WHOLESALER

BUY QUALITY — BUY ALCO

Designers and Manufacturers of Thermostatic Expansion Valves; Evaporator Pressure Regulators; Solenoid Valves; Float Valves; Float Switches.

6033

ALCO VALVE CO.

953 KINGSLAND AVE. • ST. LOUIS 5, MO.

To Make Hermetically Sealed Electric Feed Through Terminals

CINCINNATI—A second industry source for hermetically sealed electrical feed through refrigeration terminals is now in operation, it was announced here.

Woodford Mfg. Co. in Versailles, Ky., has been placed in operation by key executives of Fusite Corp., Cincinnati.

The operation is completely independent of Fusite. Separate production facilities are located in the 5,000-sq. ft. plant in Versailles. The plant has two production lines and is now working one shift. Production can be increased by the addition of two additional shifts.

W. J. Westphale has been appointed sales manager for Woodford. He will have his office at Fusite.

While Fusite produces a variety of terminals for both electronic and refrigeration industries, the new plant will be devoted solely to refrigeration terminals.

Paul Hardeman Absorbs Subsidiaries Into 4 Divs.

LOS ANGELES—Paul Hardeman, Inc., constructor-engineer, has merged the various subsidiary companies formerly in the Hardeman group with the parent firm.

Climate Conditioning Corp., Wall Cryogenics, Inc., Systems Engineering Co., J. B. Gill Co., and Electronics Corp. have become a part of Paul Hardeman, Inc.

J. B. Gill and Wall Cryogenics were combined and are now known as the J. B. Gill Div. Each of the other companies is called a division of the parent firm.

Arizona Wholesaler Opens Third Store

YUMA, Ariz.—Arizona Refrigeration Supplies has opened its third store here. The others are in Phoenix and Tucson.

The new facility is managed by J. E. Pelletier who has been in the firm's Tucson store since 1949.

W. C. Miessemer is president and Harold Anderson is general manager of the firm which has headquarters at 231-237 S. Central, Phoenix.

Cool Shopping Center

LOUISVILLE, Ky.—Sixteen new business establishments for Jefferson County have formally opened in Bacon's Shively Shopping Center on Dixie Highway. All of the units are air conditioned.

Redmond
MICROMOTORS
One of largest stocks in the world!
FACTORY DISTRIBUTORS
MARVIN L. "FERGIE" FERGESTAD
CYCLO-FREEZE CORP.
6318 Cambridge, Mpls. 16, Minn.
West 9-6794

Local RSES Unit School Trains Refrigeration Technicians, Service Engineers

COLUMBUS, Ohio—The Columbus area manufacturers of refrigeration and air conditioning equipment are giving invaluable assistance in the form of material, manpower, and classroom facilities to the national study course sponsored by the Refrigeration Service Engineers Society's local chapter, the latter's Educational Office reports.

The result of this assistance has been a well-organized, well-rounded program to train students to become industry technicians and service engineers, it was pointed out.

8 MFRS. SUPPORT STUDY

Among the manufacturers supporting the study program are Armstrong Furnace Co., American Blower Corp., Ebco Mfg. Co., John Herrel & Sons, Inc., Lennox Industries Inc., Surface Combustion Corp., The Sweden Freezer Mfg. Co., and Tecumseh Products Co. of Marion, Ohio.

POINTING TO interesting examination questions as RSES instructors look on, is Ivan C. Stepnich, RSES vice president and educational chairman, prior to class period at Lennox Industries Educational Bldg. Standing l. to r. are Ray Link, Armstrong Furnace Co., development engineer, Bill Taylor, chief engineer for Ebco Mfg. Co. Seated l. to r. are Leonard Latshaw, owner of AAA Refrigeration Co., Ivan C. Stepnich, district manager for Penn Controls, Inc., Bob Mees, director of training for Surface Combustion Corp., and William Faller, research engineer for Surface.

INSTRUCTOR Leonard Latshaw, sleeves rolled, points out components of the refrigeration system as students, l. to r., Robert Kirwin, John Schmidt, Del Bose, Neil Bumgarner, Thomas J. Killilea look on in Lennox Industries Educational Bldg. in Columbus, Ohio.

The training program was created by the International RSES "to combat the serious industry shortage of well-

(Concluded on next page)

Announcing . . . Revised for genetron®

In the interest of helping to standardize refrigerant terminology and nomenclature, General Chemical is adopting the revised code numbers shown above for its "Genetron" Super-Dry Refrigerants, effective January 1, 1957.

These numerical designations reflect recommendations of trade and technical associations throughout the industry which have been working jointly and independently on many standardizations, including a common numerical code system for fluorinated hydrocarbon refrigerants.

The numerals for two of the most widely used "Genetrons"—"Genetron" 12 and "Genetron" 11—already conform and, accordingly, are not being changed.

For more information about products advertised on this page use Information Center, page 20.

RSES Technician Training--

(Concluded from preceding page)

trained personnel to layout, install, and service equipment in the field."

This limitation has been well-documented in market studies and by the verbal and written expressions of most industry leaders, according to the report.

"Moreover, this limitation has been rendered more acute by the predicted growth of the industry," it was stated. "Recent studies have revealed that the rapid rise in population has resulted in an increasing number of new commercial refrigeration installations and applications.

"In addition, the air conditioning industry is predicted to become a $5 billion industry by 1963; this is approximately double the present figures. Signs of this potential growth are readily visible in the residential, automotive, and industrial air conditioning market."

With this picture in mind, the RSES organized a three-year study course for its members and applicants, and it instructed each of its 200 chapters to initiate classes based on this program.

RSES further advised that each term of the study course would consist of 36 weekly meetings. Text for the course was to be RSES *All-Makes Service Manual* which has thorough coverage of all fundamental principles of refrigeration and air conditioning.

Moreover, instructors for the course were to be chosen from the more advanced members.

MUST ATTEND 30 CLASSES, PASS 3 WRITTEN EXAMS

Further instructions pointed out that students in order to qualify for succeeding terms would have to attend 30 of the 36 classes, pass two written examinations during the term, and a final examination at the conclusion of the term. Students completing three terms successfully would then receive an RSES diploma.

The significance of the RSES diploma is that it gives the graduate a mark of achievement that has international recognition and acceptance in the industry, it was noted.

The Columbus chapter program organized by Ivan C. Stepnich, vice president and educational chairman, "is unique because of the willingness of even competing manufacturers to coordinate their efforts toward its success," the report said.

"In addition, the assistance given by the manufacturers in making training aids and classroom facilities available coupled with the participation of their engineering and training personnel in instructing capacities has enabled the Columbus chapter to have one of the best-equipped and best-staffed programs in the nation.

"An example of the impressive teaching staff is indicated by the seven-man teaching roster. Bill Faller is a former high school principal and is presently a research engineer for the Surface Combustion Corp.; Bob Mees is in charge of training for this organization.

"Leonard Latshaw has had over five years' trade school teaching experience and is the owner and operator of the AAA Refrigeration Co. Gerald Schroeder is in charge of the application engineering department for Lennox Industries, Inc. Ray Link is an industrial and development engineer for Armstrong Furnace Co. Chuck Daugherty is in charge of service and in charge of training for the same company. Last but certainly not least is Bill Taylor, the chief engineer for Ebco Mfg. Co.

"The result of this assistance has been manifested by the unforeseen number of students who have registered for the course. In early speculation on the course, the local chapter officials were hoping for at least a class of 20 students.

"Actually 85 students registered immediately with many coming from Marion, Ohio, Zanesville, Lancaster, and outlying communities. In addition to this group many latecomers are urging chapter officials to form new classes as soon as possible."

Utilizing excellent facilities available, the Columbus chapter classes are held at 6 and 8 p.m. every Wednesday. The first term classes started on October 24, 1956 and will end with a final examination on June 12. The class locations alternate from Lennox Industries to Surface Combustion to Armstrong Furnace in repeating cycles.

Also rotating are the teaching assignments handled by the seven instructors. Continuity of teaching is provided to the program by the fact that all instructors attend each class. Then periodical meetings or critiques are held where analysis of instructing weaknesses and strong points are made.

"The chief significance of the RSES study program is the promise it holds for the future of a potentially giant industry which cannot hope to reach its predicted stature without an increasing number of well trained technicians to install and service its complex and highly specialized equipment," the report said.

R. H. Luscombe Elected To Fill ARI Board Vacancy

WASHINGTON, D. C.—Robert H. Luscombe, general sales manager of Penn Controls, Inc., has been elected to the board of directors of Air-Conditioning & Refrigeration Institute to fill the vacancy caused by the resignation of E. B. Maire, who recently left Penn Controls.

Luscombe has been an advisory member of the board for some years.

He was president of the former Refrigeration Equipment Manufacturers Association.

Code Numbers

SUPER-DRY REFRIGERANTS

. . . in the interest of standardizing refrigerant terminology and nomenclature

PRESENT GENETRON CODE NUMBER	CODE NUMBER TO BE USED EFFECTIVE JAN. 1	COLOR-CODE	REFRIGERANTS
genetron 11	11	ORANGE LABEL	TRICHLOROMONOFLUOROMETHANE
genetron 12	12	WHITE LABEL	DICHLORODIFLUOROMETHANE
genetron 141	22	GREEN LABEL	MONOCHLORODIFLUOROMETHANE
genetron 226	113	PURPLE LABEL	TRICHLOROTRIFLUOROETHANE
genetron 320	114A	DARK BLUE LABEL	DICHLOROTETRAFLUOROETHANE

"Genetron" Super-Dry Refrigerants are stocked and recommended by America's leading air conditioning and refrigeration wholesalers. When ordering from them in the year ahead, please use these revised code numbers to designate the "Genetrons" you need.

GENETRON DEPARTMENT

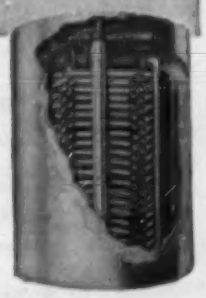
GENERAL CHEMICAL DIVISION

ALLIED CHEMICAL & DYE CORPORATION

40 Rector Street, New York 6, N. Y.

Allied Chemical

Filtrine Since 1901



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FILTRINE MFG. COMPANY

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Ice Kept at Waist Level In Cold Corp. Cuber; Firm Adds 1,000-lbs. per Day Flaker to Line

CHICAGO—Two additions to its family of ice making equipment have been introduced by Cold Corp. of America here.

Now available are the "Cube-Freeze" automatic ice cuber and the "Ice-Chief" automatic ice flaker.

The Cube-Freeze can be used as a companion unit for the "Chip-Freeze" (a 560-lb. automatic ice flaker), or as an individual unit.

"It produces a daily capacity output of 300 lbs. of fresh, crystal-clear ice cubes," the company said.

"Each perfect cube is completely solid and is standard size 1⅜ in. by 1⅜ in."

The unit features Cocora's "no deep reaching" design that keeps ice at waist level.

AUTOMATIC "Cube-Freeze" which makes 300 lbs. of ice cubes daily is now available from Cold Corp.

The new Ice-Chief produces 1,000 lbs. of ice flakes per day, according to a report by the company.

The complete unit has an over-all width of 61 in., is 71¾ in. high and 24 in. in depth. It is recommended for use by hotels, restaurants, taverns, hospitals, supermarkets, bakeries, soda fountains, clubs, and many other businesses and institutions requiring a high producing ice flaker, the company further indicated.

J. J. Shelley, executive managing director of Cold Corp. of America, said the new ice makers are available in Cocora's range of decorator colors, as well as the usual white and stainless steel.

To Cool Youth Center

BROOKLYN — Ground has been broken for a three-story air conditioned $500,000 youth center here, latest addition to the Kingsway Jewish Center.

Vendo's Combined Operation Expected To Top $30 Million In Sales In 1956

KANSAS CITY, Mo.—Vendo Co., which recently acquired Vendorlator Co. of California, this year expects to chalk up a sales total of more than $30 million and net profit of about $1,750,000, R. W. Wagstaff, executive vice president announced.

Because of the expanding market for vending machines and introduction of new items, the company forecasts sales of $45 million to $50 million for next year.

Consolidated sales for the nine months ended Sept. 30 were $23,305,027. Net profit after preferred dividends amounted to $1,356,924, equal to $1.19 a share on 1,146,403 outstanding common shares. These figures included Vendorlator sales and earnings since July 1.

Product diversification continues to boost sales, Wagstaff said. Six years ago about 86% of the firm's business was from one line of products—coolers for soft drinks. Now there are four major product divisions and the year's net should be equal to about $1.50 a share on common stock.

Vendo sales last year were $20,799,000 and earnings equal to $1.01 a share on then outstanding 810,000 shares of common.

Cordley & Hayes Gives Drinking Water Cooler

NEW YORK CITY—The Muscular Dystrophy Associations formally accepted the offer of a drinking water cooler from the firm of Cordley & Hayes, cooler manufacturer, according to a spokesman for the company.

Accepting the offer for MDA was Dr. Melville H. Manson, the associations' scientific director. The cooler will be installed in the planned $3,000,000 Institute for Muscle Diseases soon to be built opposite Manhattan's New York hospital.

Cordley & Hayes first made the offer on the recent Martin and Lewis TV Round-Up, during which a galaxy of stage, screen, and TV personalities raised over $600,000 for the new institute.

Distributor Shows Own Items In New Quarters

LECOMPTE, La.—Hoyt Refrigeration Co. recently held open house to celebrate moving into new quarters on Hwy. 71 here.

Hoyt, a Friedrich Refrigerators, Inc. distributor, invited grocers, cafe owners, dairymen, poultry farmers, and wholesale produce people to visit its new building.

Displays included a model supermarket equipped with green produce cases, blue frozen food cases, yellow dairy cases, pink meat cases, checkout counters, and fixed and adjustable gondolas.

For the past three years the firm has been manufacturing walk-in coolers, and freezers, along with all types of shelving, gondolas, checkout counters, and other items.

Another enterprise of the Hoyt firm is making automatic ice-vending machines.

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regardless of Load or Number of Circuits

Buy SPORLAN REFRIGERANT DISTRIBUTORS *with these* 11 *Proven Features!*

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8. Permits insertion of test wire to check against plugging of solder joint at evaporator connections.

9. Permits final submerged coil leak test with high pressure before attaching valve.

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11. Steel or aluminum bodies are available in certain distributor types for Ammonia and other special applications.

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Contractors Comparative Business Status—1954-55

RACCA Finds Profit Drop as Volume Rises

MIAMI BEACH, Fla.—A sharp decrease in percentage of profit as volume increases was a significant finding in a survey of average operating and financial status of contractors belonging to the Refrigeration & Air Conditioning Contractors Association.

Survey Compares 1954 with '55

The survey compares 1955 operations with 1954 among the participating contractors. Returns were received from 41% of the cities in which RACCA has members.

Results are summarized in the accompanying table, which divides the contractors into four classes based on dollar volume.

Ray Kromer, executive vice president of RACCA, commented that results indicated that contractors in the first two categories reported their net profits before taxes, while the larger contractors in the last two categories reported theirs after taxes.

The comparatively large inventories reported by the Class D contractors, he believed, reflect the fact that they are generally either distributors, who must maintain larger stocks in order to supply their dealers, or are large mechanical contractors who included inventory at the job site.

In releasing this data, Kromer noted that additional surveys of the membership will be distributed to members only and will not be published.

At RACCA's annual meeting at the Balmoral hotel here, an informal survey of members present was made to determine average overhead as a percentage of total sales.

Average Overhead About 15-18%

The results were as follows:

Total Sales	Overhead
Under $50,000	35%
$150,000 to $400,000	15%
$400,000 to $500,000	15%
$700,000 to$1,000,000	18.6%
$1,000,000 to $2,000,000	17%
Over $2,500,000	11%

R. S. Lafferty, secretary of Hill-York Corp., who conducted the survey, asked the contractors to use the overhead figure they use when bidding on jobs.

Jack Wanless, Houston contractor, commented after the survey had been taken, that the figures do not take in consideration the number of jobs handled during a year. He pointed out that two contractors doing about the same annual volume would have widely separated overhead percentages if one did about 18 jobs a year and the other did 150.

A-B Sales Climb

ST. LOUIS — August A. Busch, Jr., chairman and president of Anheuser-Busch, Inc., recently said refrigerated cabinet division sales climbed 3.6% in the first nine months of this year as compared with 1955.

REFRIGERATION AND AIR CONDITIONING CONTRACTORS
AVERAGE OPERATING AND FINANCIAL STATUS

Comparative 1954 and 1955 Data Based on RACCA Membership Survey In 1956

	Class A—Volume $10,000 to $100,000		Class B—Volume $100,000 to $200,000		Class C—Volume $300,000 to $750,000		Class D—Volume Over $750,000	
	1954	1955	1954	1955	1954	1955	1954	1955
Average Volume	$40,667	$56,787	$140,800	$161,540	$457,143	$471,430	$1,334,100	$1,416,921
Average Inventory	$ 7,994	$ 9,226	$ 17,116	$ 16,870	$ 48,210	$ 52,561	$ 167,892	$ 151,668
Cost of Goods (Incl. labor, material)	67.6%	68.2%	68.8%	62.4%	76.1%	76.43%	77.96%	77.104%
Gross Profit	29%	31%	31.2%	37.6%	23.9%	23.57%	22.04%	22,896%
Net Profit	13%	14.2%	11.3%	8.1%	2.69%	2.72%	1.64%	1.426%
Invested Capital	$34,334	$38,331	..	..	..	..	$ 90,730	$ 136,287
Net Worth	$37,320	$39,640	$ 19,601	$ 18,207	$ 54,500	$ 53,166	$ 173,288	$ 188,442
Total Assets	..	..	$ 59,880	$ 57,612	$130,000	$129,750	$ 502,406	$ 674,143
Total Liabilities	$ 5,443	$ 7,776	$ 15,618	$ 16,400	$ 70,250	$ 72,250	$ 329,118	$ 486,701
Average No. of Years In Business	16		13.5		13.5		17.5	

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EVAPORATIVE CONDENSERS
COOLING TOWERS
UNIT COOLERS
BLAST COILS FOR HEATING AND COOLING

Cutaway-Glass-Panel Exhibits In 'Climate Vans' To Introduce Worthington Year-Round Conditioning Equipment to Markets

POINT CLEAR, Ala. — Two "Climate Vans" were recently unveiled by Worthington Corp. at a wholesalers meeting here.

The vans, built at a cost of almost $100,000, will tour the country, bringing the company's complete new line of air conditioning and heating equipment to every major market by March 1.

Although "they look like any ordinary truck when in transit," the Climate Vans convert into combination showrooms, conference rooms, and motion picture theaters when set up for exhibit.

A turn of a lever expands the sides, roof, and floor to a width of 15 ft. 2 in., the company explained. Simultaneously, a stairway folds out from the rear to provide an entrance for visiting architects, builders, and prospective new dealers. Inside, a score of exhibits representing the latest Worthington packaged air conditioning and heating equipment, cover walls and ceiling.

SAMPLES of Worthington's complete new line of packaged air conditioning and heating equipment are displayed in touring "Climate Vans."

Many exhibits are shown in cutaway or with glass panels to depict inside operation of the units. A registration desk just inside the rear fold-out stairway doubles as a projection booth for showing the 16 mm. sound-motion picture and 35 mm. slide film which elaborate on the equipment displayed, it was pointed out. A loudspeaker system provides background music when not in use with film showing.

Van interiors are "brightly" decorated, the company further stated, with a colorfully-tiled 8-ft. aisle for easy movement. One of the exhibits on display will cool the interior in summer, heat it in winter. Each Climate Van will be operated and maintained by Worthington drivers, also responsible for readying trucks for display.

To be used for field sales training and for exhibition to Worthington stockholders and the public, the vans are expected to "be one of the best investments" the firm has ever made.

These traveling showrooms bring latest Worthington units to prospective customers.

City Requires Water Savers on Conditioners Using 8 G.P.H. a Ton

GRAND RAPIDS, Mich. — Dec. 2 was the deadline after which no water-cooled air conditioning system depending on city water as its sole cooling medium could be operated or installed in the city of Grand Rapids.

The deadline was part of a city ordinance passed last October requiring water conserving devices for all water-cooled air conditioning systems using more than an average of 8 g.p.h. of city water per ton while operating.

The ordinance was adopted following a study that indicated that non-conserving water-cooled air conditioning systems used up to 22% of total consumption on maximum days and absorbed 4% of total yearly water consumption.

Admitting the air conditioning was only a "small facet of water conservation," the city commission at the same time ordered the city manager to make an over-all study of water conservation as it affects the city's water supply and distribution systems and report back to the commission by next March 1.

George D. Schmid, director of public service said, "At present, our situation is that with an average daily demand of 33 million gallons, which increases to 66 million gallons on the maximum day with a pumping rate equivalent to 110 million gallons a day during the maximum hour, we must find a solution."

The present air conditioning ordinance calls for a $3 installation and annual inspection fee and permit on all water-cooled equipment.

Violators are subject to a fine of not less than $50 and not more than $200 and imprisonment for not less than two nor more than 10 days.

Carrier Promotes 4 In Personnel Div.

SYRACUSE, N. Y. — Four promotions involving members of Carrier Corp.'s Personnel Div. have been announced by Howard M. Dirks, vice president of the division.

Thomas Asquith has been transferred to Cambridge Corp., Lowell, Mass. Asquith, who had been manager of salary administration for Carrier, is assuming the new position of director of personnel for the Lowell subsidiary.

William B. Furman has been appointed manager of salary administration, replacing Asquith. Furman's former post had been manager of supervisory and trade training.

Assuming many of Furman's former responsibilities is Charles J. McKeone in his new position as manager of factory training. McKeone joined Carrier in 1936.

Kline Hable has been appointed manager of office supervisory training. In addition to his training duties, Hable will have general responsibility for Carrier's personnel testing program.

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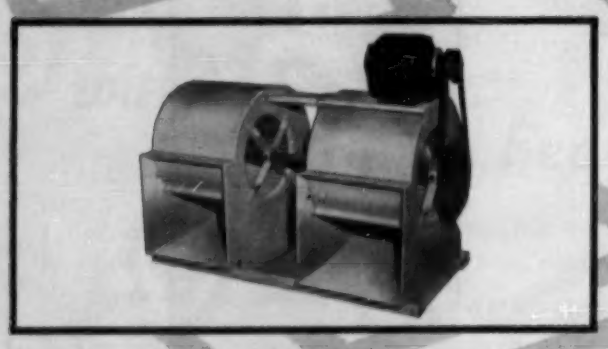
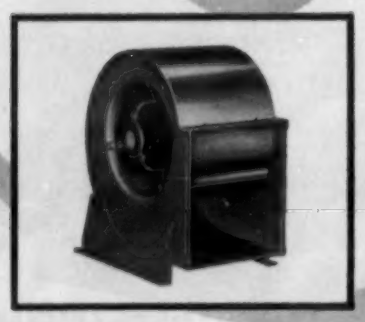
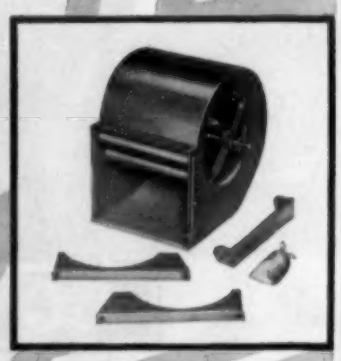


TWINS



DIRECT DRIVE

POWER CENTER



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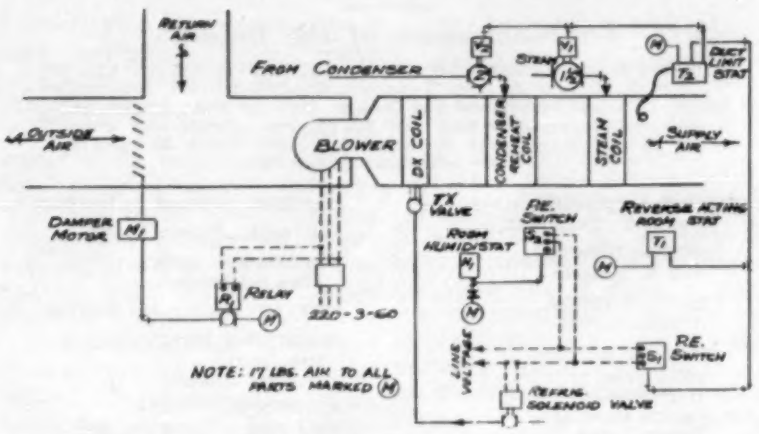

CONTROL diagram for instrument and gauge assembly room.

CLEVELAND — Air conditioning, which provides stability of temperature and humidity, is all-important in the manufacture of gauges and precision instruments, it was pointed out recently.

To "guarantee" close tolerances, finer precision, and greater accuracy in production of its gauges and precision instruments, Victoreen Instrument Co. here had a 20-ton Typhoon packaged air conditioner installed in its plant.

Temperatures usually employed by the precision instrument field—between 75 and 80° F. with plus or minus ½° tolerance — called for special measures. The relative humidity conditions generally maintained are between 45 and 50% with plus or minus 1½% tolerance. For less critical instruments, it is common to maintain limits of plus or minus 1° temperature and plus or minus 5% relative humidity, it was explained.

To meet the special needs of the Victoreen assembly room, engineers of the Bell Refrigeration Co., installer of the equipment, included a three-row condenser water reheat coil, a one-row low pressure steam coil, and a fixed by-pass around the cooling coil of 1,830 c.f.m.

In addition, an electrostatic air filter was located ahead of the air conditioner and a system of pneumatic controls was installed. The sequence of control operation of the "Electric-Pneumatic" system (see diagram) is as follows:

1. On fan start, EP relay R1 is energized. This put air to damper motor M1 and opens fresh air damper.

2. Thermostat T1 performs two functions. First, it will reset the control point of the duct limit stat T2. Second, on temperature rise it will cause P. E. switch S1 to make contact and energize the refrigeration solenoid valve.

3. Duct temperature controller T2—which is reset by T1—will, in sequence, close valves V1 and V2 on rise in discharge temperature.

4. Humidity controller H1—on rise in relative humidity—will cause P. E. switch S2 to make contact and energize the refrigeration solenoid which starts the compressor.

The end result: gauges and precision instruments are claimed to be exactly as they should be—together with more comfortable, "more efficient" employes.

York Names Sackett Industrial Div. Mgr.

NEW YORK CITY—Paul L. Sackett has been named Boston area branch manager for the Industrial Div. of York Corp., subsidiary of Borg-Warner, it was announced recently by Robert G. Werden, York north Atlantic district manager.

Sackett has been a sales engineer with York since finishing college in 1927.

During World War II, he collaborated with the United States Army Engineers in the design of cold storage plants and Army facilities in the New England District.

'Tile Gray' Coating To Highlight Trane Line

LA CROSSE, Wis. — The Trane Co. is announcing plans to coat the exteriors of its standard line products a "tile gray," replacing the brown finish which has been standard for a number of years.

The gray, according to Trane color experts, blends with traditional machinery colors for factory installations as well as allowing for greater interior decorating leeway when products are used in the home.

The new paint also provides greater protection and "exceptional corrosion resistance," Trane claims.

Ad Agency Named

BUFFALO—Houdaille Industries, Inc. has announced the appointment of Comstock & Co., Buffalo, as its advertising agency effective Jan. 1, 1957.

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with national distribution
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This year Du Pont celebrates its first quarter-century of producing "Freon" for the refrigeration and air conditioning industry. Since January 13, 1931, the ever-widening acceptance of "Freon" has been a tribute to the pioneering research and product development that has made this safe, non-toxic and non-flammable refrigerant the leader in its field. Today, the Refrigeration Department of American Potash & Chemical Corporation is proud of its teamwork with Du Pont as a leading national distributor of "Freon" products —teamwork that combines trade-knowledge, technical service, better packaging and wider distribution so necessary in a dependable source of supply.
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They'll Do It Every Time

by Jimmy Hatlo

I WOULDN'T CARE, BUT I HAD EIGHT GUESTS--THEY GAVE ME A TABLE OUT IN THE LOBBY...
I WOULDN'T GO TO ANOTHER ONE IF THEY PAID ME--- BIGDOME INSULTED MY WIFE ...
EVERYBODY WANTS TO SIT ON THE FIFTY-YARD LINE--AND ALL THE DAMES EXPECT THE BOSS TO DANCE WITH THEM....
THE OFFICE BOYS ARE KICKIN', TOO---ANESTHESIA PUT A DAMPER ON ALL SHE SURVEYED...
THEY PUT ME AT A TABLE WITH ALL THE OFFICE BOYS!
I NEVER GOT SERVED.. SOMEBODY STOLE MY TICKET..
HOW DO THEY KNOW WHERE THEY SAT? THEY HAD TO BE CARRIED IN!
MRS. PHOOTKISS WAS TRYING TO TELL THE BOSS HE DIDN'T APPRECIATE HER HUSBAND...
MORNING AFTER THE OFFICE DINNER-DANCE---THEY'LL KNOCK IT EVERY TIME ....
COPR. 1956, KING FEATURES SYNDICATE, Inc., WORLD RIGHTS RESERVED.

Business Dilemma: Growth and Profits vs. Competitive Position

What is the effect of management policy as to competition upon sales volume, profits, and the survival and growth of a business enterprise?

As Henry Ford proved, greatest volume is attainable by producing the most and selling for the least. By putting your product within grasp of more people price-wise, theoretically you increase its volume of sales (but not necessarily your profits). Right there is a modern dilemma for corporation Presidents.

Among other competitive influences on management policy is the appeal of dissimilar things which vie with your product for the consumer's dollar. Sometimes "out in left field" competitors hit you from behind when you aren't looking.

Example: a housewife wants a new dishwasher. She enters a store fully intending to buy a dishwasher, but discovers that an automatic clothes washing machine is selling at a cut price. So she buys the latter impulsively to salve her conscience—even though she already owns a less-up-to-date but serviceable clothing washer. The lower price for the automatic clothes cleanser is incidental—an excuse for not indulging her true need for a dishwasher. To herself she may say: "this is a bargain." Right there she goes wrong emotionally.

Obviously dishwasher marketers haven't sold her well enough on indulging her worthy desire for upgrading her life and having more time for her family and cultural pursuits (a boon which the dishwasher obviously provides).

Prevalent forms of bad management principles which mislead home purchasing agents into such shadow shibboleth "bargain buying" include these bum practices:

1. Setting prices so low that competitors either will go broke or get out of the business.

2. Meeting competitors' temporary cutthroat prices without regard to the consequences to one's own business or to customer satisfaction.

3. Trying to maintain "competitive position" regardless of cost to maker, seller, or consumer.

Most of us know too well the lively contempt and dislike held by the average person for any concern which makes a practice of grabbing as much unjustified profit as the market will bear. Even though we prefer their goods, or admire the skill and efficiency of their services, we literally bide our time until we can humiliate an organization which blatantly takes advantage of their assumption that we are suckers.

By the same token no person is content with any "fire sale bargain" when the latter is acquired under duress, fear, or cupidity. Certainly any business concern—whether factory, distributor, contractor, or dealer—shouldn't risk its stockholders' money on an immoral or "grabby" business attitude. Underpricing, in this connection, is equally culpable with overpricing. The public fears both.

That's a good reason why the shadow shibboleth of maintaining "competitive position" can be (and usually is, nowadays) a 51-inch yardstick. In that connection R. T. Hurley, president of Curtiss-Wright Corp. and new boss of Studebaker-Packard, recently gave his formula for making Studebaker-Packard profitable again:

"We shall not tie our plans for profitable operation to big volume production or to getting any particular share of the automobile market. Studebaker-Packard's prior problem was insufficient sales for the size of its facilities and organization. It is not good sense to say that you have to make X number of cars—that you can't be successful with making say Y or T number of cars."

If a manufacturer, wholesaler, dealer, or contractor loses $10 on each one of a series of sales just to "maintain his competitive position" (first, third, or where is he?) his eventual bankruptcy is in the cards. Or, if he is big and rich enough to get away with it for awhile, some of his competitors will go broke. In the meantime quite a few consumers may be left out on a limb when they need service.

Moral is: If competitors want to go broke, let them, but don't force them. That's immoral, too. Preserving "competitive position" at any cost not only is immoral, but stupid in the long run. It's an interesting game, but those who play it lose sight of their main objectives: profitability, corporate longevity, and customer satisfaction.

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AIR CONDITIONING & REFRIGERATION NEWS

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'The Conscience of the Industry'

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Milwaukee, Wis.

Editor:

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Baltimore 12, Md.

Editor:

Permit me, unqualified though I may be, to enlarge upon one serious drawback in the progress of our industry. That of the lack of skilled mechanics. In your "Conscience of the Industry" editorial in the Oct. 15 issue, you mentioned the chief areas in need of improvement, and in the continuation of the editorial, explained how the industry will be well served by Purdue and the Purdue Research Center. Purdue, however, cannot turn out a skilled Air Conditioning and Refrigeration mechanic. In fact no school can turn one out. He is the product of his own efforts and the opportunities he has had. He is skilled because he possesses valuable experience, considerable technical knowledge, and has mastered, through much practice, the many manual skills of his trade.

The complexity of modern systems and the daily problems they present to the mechanic have brought home to him with clarity the need for technical know-how in coping with these problems. That he realizes this need is evidenced by the numbers flocking to the night schools. Industry should feel its responsibility to give support to any project or program which will increase the technical education of mechanical personnel.

A new man or a helper gains experience which no school can give him by working under a skilled mechanic, and learning

(Concluded on next page)

Handy Way to Subscribe

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Keep up-to-date on what's going on in your industry. You'll see action weekly in AIR CONDITIONING & REFRIGERATION NEWS. Covers latest news and gives you top how-to-do-it reports on commercial and residential air conditioning, commercial and home refrigeration: manufacturing, contracting, distributing, retailing, and servicing. Read the Industry's newspaper for profit every week. Only $6.00 per year, 52 issues (U.S. and Canada). Foreign: $10.00 per year.

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Gentlemen: Send the NEWS every week for one year. ☐ $6.00 enclosed ☐ Bill me ☐ Bill Company.

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IMPORTANT: Company's Type of Business.....

(Concluded from preceding page)

and practicing those crafts which can *only* be learned by doing. Today, too many mechanics are working alone because their employers do not want to hire helpers. Industry should shoulder this responsibility. The helpers we didn't hire in the past are the mechanics which we are seriously short of today.

The mechanic of today has greater responsibility than ever before. The mechanical engineers he turned to for technical guidance in the past are no longer within reach, and in many cases he is supervised by persons who can not help him solve his problems. If he is equipped to work out his own problems all is well, but if he is forced to take trial and error measures it can only result in poor advertising for the outfit and the equipment. Manufacturers' representatives alleviate this situation somewhat, but they are too busy to completely fill the need.

Now I find myself wondering why I have written this letter. Perhaps if you publish it, it may be the first time the viewpoint of a mechanic has been put before the eyes of the industry.

J. E. CARRISS,
Air Cond. & Refrig. Mechanic (full time)
Instructor, Refrig. & Air Cond., Evening Class (part time)

REQUESTS LIST OF COMPANY SCHOOLS

A/2c George A. Elliott
AF 14561627
5001st. Installation Sqdn.
APO. 731 Box 281
Seattle, Wash.

Editor:

I am stationed at Ladd Air Force Base Alaska and will be discharged in the near future. I am with the refrigeration and air conditioning shop located at Ladd, AFB.

I am planning on making this a career after being discharged from the Air Force. It would be greatly appreciated if you could send me a list of company operated schools which provide a job upon completion of the course.

Yours truly,
GEORGE A. ELLIOTT

REPRINT PERMISSION REQUESTED

Servel, Inc.
Evansville 20, Ind.

Editor:

Your editorial entitled "Possibilities and Probabilities for Gas Air Conditioning" in the Nov. 5 issue of AIR CONDITIONING & REFRIGERATION NEWS has, of course, stimulated much interest in this field.

We would appreciate very much receiving permission from you to reprint this article, of course, giving appropriate credit to your publication.

Thank you in advance for your kind consideration of this request.

ROBERT C. MARBACH,
Advertising & Sales Promotion
Air Conditioning Div.

R. M. LOCKE CLARIFIES BROAD STATEMENT

Minneapolis-Honeywell Regulator Co.
Minneapolis, Minn.

Editor:

My attention has been called to a statement in the Oct. 22 issue of the NEWS attributed to me: "No one is doing a good job of installing lines for remote units" supposedly made during a talk on residential air conditioning controls. This statement was very possibly exactly correct, but I meant to get across the point that newcomers to the field were having difficulty installing the remote refrigeration lines and that the hermetically sealed system broadened the base of dealers who could sell central residential air conditioning.

Obviously there are many, many qualified refrigeration installation men in the country who experienced no difficulty with the installation of refrigeration lines from the evaporator to a remote condensing section. Any such broad statement as mentioned above would be incorrect.

R. M. LOCKE, Market Mgr.,
Residential Air Conditioning Controls

A SERVICEMAN SPEAKS UP

New York, N. Y.

Editor:

I am a serviceman, in the Refrigeration Industry. I have been in this business of installation and service for a long time, and refrigeration covers a very large field.

And as a rule no one man is a expert in all it's branches. It is broken down into 3 specialized branches namely.

1. Installation
2. Operational
3. Service

Each of these branches is a field in itself, and there are any number of jobs in them. Some are good many are not.

No. 1. Installation jobs are good are usually well paid jobs.

No. 2. Operational jobs are fairly well paid and have the advantage of being steady all year around, which is something that cannot always be said of installation and service jobs which are frequently seasonal.

No. 3 Service jobs are really top jobs in this field. These men command top wages and if good are usually kept on the payroll the year around.

But there are a lot of good servicemen who do all of these. They have the knowledge of refrigeration theory and principles. But what happens?

Well, for sometime now, some embryonic service companies have been dissatisfied because there's not enough servicemen to go around. Well let me tell you I know they are so wrong. Many fellows that I know have left the refrigeration field and many will do the same.

Service companies don't know how to handle a good serviceman. Most companies demand too much from them. Many servicemen meet up with disappointments and are disillusioned men in these fields.

First the pay is not what it seems to be or should be. I think that some responsible group within the industry should let it be known to these embryonic service companies that a serviceman is human.

Why don't the Refrigeration Industry give us servicemen some recognition? I do hope that your paper does.

J. L.
(Name withheld by request.)

Here's your key to MORE BUSINESS . . .

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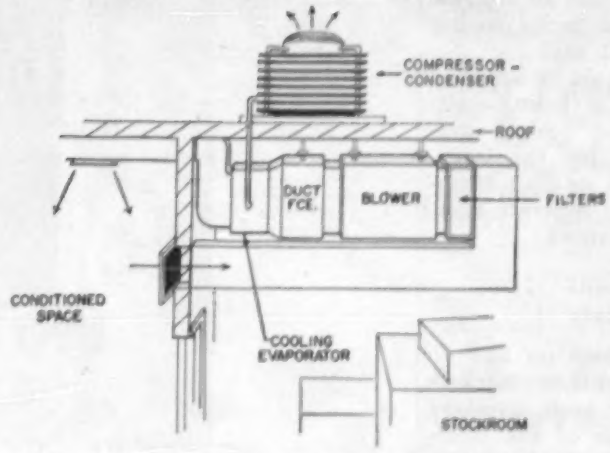
gas-fired DUCT FURNACES

. . . help you sell heating-cooling combination systems by keeping costs down!

Pull out *all* the stops on competition when you go after heating-cooling combination jobs. Figure the system with Janitrol Gas-fired Duct Furnaces, and you'll be a tough competitor. Janitrol Duct Furnaces are low in cost, require less installation time and labor. They fit right into duct work used for cooling, save space, assure highest heating efficiency. As for *durability*, let this fact be your guide: Janitrol's exclusive armor-coated, corrosion-resistant heat exchangers are *so rugged* that replacements for any cause during the past seven years have run less than ¼ of 1%! That's *proof* of real quality!

Janitrol Duct Furnaces are easily added to existing cooling systems, too—with BIG savings. Another source of profitable new business for you. Write us today for Bulletin DF-53 giving complete specifications and performance data on the six sizes of Janitrol Duct Furnaces. Address Department AC-612.

TYPICAL COMBINATION SYSTEM



NOTE: All DUCT Furnaces should be installed in accordance with the procedures established by AGA and ASA.

Janitrol
HEATING AND AIR-CONDITIONING DIVISION

Surface Combustion Corporation, Columbus 16, Ohio
In Canada: Moffats, Ltd, Toronto 15

NWAHACA Directs Program to Dealers--

(Continued from Page 1)

houses, what motivates buyers, reports on local and national association activities aimed at improving quality of installations, and discussions of other topics.

In explaining that the association's publicity efforts are directed to the consumer, Randall Nelson, director of public relations, complained that "there exists little or no consumer demand for quality home heating systems.

"The average consumer," he said, "is registering no complaint about unsatisfactory heating. While this eliminates headaches, it cuts down your prices and profits," Nelson told the dealers.

"This situation may become worse in view of competition from other industries for the consumer's dollar," he warned, but added, "however, the situation is not hopeless."

People 'Apparently' Want To Buy from 'Cooling Man'

The nationwide survey of central residential air conditioning made for du Pont shows that people apparently want to buy from an "air conditioning specialist," revealed R. A. Crane, market research manager of du Pont's Kinetic Chemicals Div.

Emphasizing that more selling effort is needed, Crane said the survey indicates an almost immediate market exists for 270,000 installations in metropolitan areas; that many homeowners are actively considering such a purchase.

'Comfort Zones Needed In 20% of New Houses'

Along somewhat similar lines, C. W. Nessell of Minneapolis-Honeywell Regulator Co. told the group that one-fifth of the new homes to be built in 1957 will probably need "additional comfort units or zoning" as the result of modern house designs and living habits.

Split-level homes with basement occupancy and rooms over the garage; the house with the spread-out floor plan; large concentrated glass areas; different temperature requirements for living and sleeping quarters, and convection between different levels of a house all are factors that should make zoning desirable, Nessell said.

Such zoning could be achieved in several ways, including separate heating and cooling systems, especially for the large, spread-out house, or duct dampers controlled by separate thermostats, he explained.

Offer Suggestions To Tap Markets

Some suggestions on how to tap these and other markets were offered by such speakers as Irving Gilman of the Institute of Motivational Research, who declared that "buying is done largely on an emotional basis" despite the fact that "people give rational answers to rational questions."

He urged the industry to devote more effort to building up the personality of the companies instead of "worrying about product improvement."

"I recently bought a heating and air conditioning installation without knowing the make until it was delivered. Can you imagine anyone calling up an automobile dealer and saying, 'Send me over a car.' 'What kind of a car?' 'Oh, any kind of a car, I don't care'."

And C. A. Dudley, a sales specialist, declared that "the average salesman starts out backwards by presenting his product and its features first. He's a prospect hunter rather than a prospect creator," Dudley explained.

Sales prospects for next year should continue good, believes A. M. Weimer, dean of the School of Business, Indiana university, who predicted that the new home market ought to be as good as in 1956 with the home modernization and repair market going up, and industrial and commercial construction continuing to increase.

"There is a prospect for rising family incomes, but the competition for these higher incomes will be very intense," he warned. "Aggressive merchandising sales programs will be essential."

'King Size Systems' Offer Opportunity

The industrial, commercial, and public building (especially schools) fields offer a big opportunity for the heating contractor prepared to sell and install "king-size" warm air systems, according to R. D. Long, general sales manager, American Foundry & Furnace Co.

These markets exceed the residential field ($8.4 billion compared with $7.8 billion), and forced warm air systems have several advantages, including price, over radiation, Long contends.

Opportunities also exist for the dealer-contractor in the home improvement field next year, said J. R. Doscher, executive director of Operation Home Improvement, which he described as a "task force operation" to spur home repairs and improvements. Originally planned for 1956 only, OHI will be continued next year, Doscher explained.

For more home improvements, including heating, to be made, it is necessary to sell the women, sell pride, sell obsolescence, and sell on time, Doscher said.

"This is how the automobile industry has been so successful," he suggested.

Progress reports on the Certified programs designed to promote the sale of better heating systems were presented by two speakers: Jack Demling, assistant secretary, Sheet Metal & Air Conditioning Contractors' National Association, Inc., and D. M. W. Wilson, managing director, National Warm Air Heating and Air Conditioning Association of Canada.

Success of the Certified program in Toronto, Canada, where 60 association members are doing 80% of the warm air heating business was reported by Wilson, who declared that builders and the government have endorsed and supported the program.

Among several qualifications to be met if a warm air installation is to be "certified," Wilson explained, are that the plans must be approved by the association's engineer, the installation must follow these plans (it's inspected by the association field engineer to make sure), and the contractor must be bonded.

Some skepticism about the

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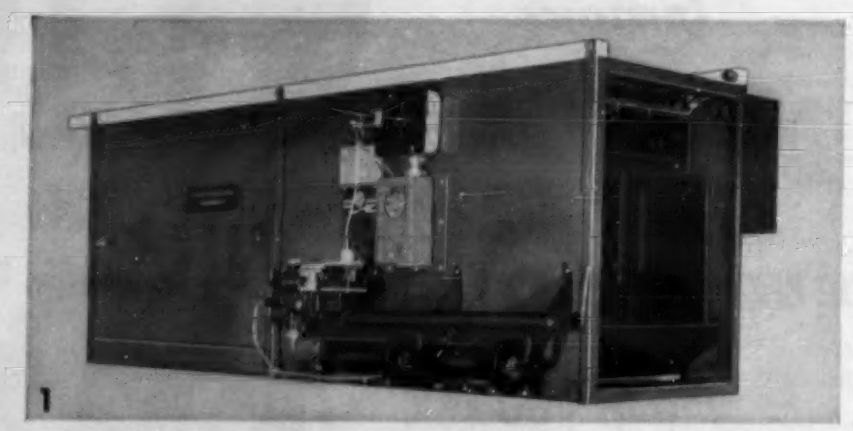
NEW FROM WORTHINGTON

A COMPLETE LINE OF

Now you can get the finest heating and from one source . . . through one contact



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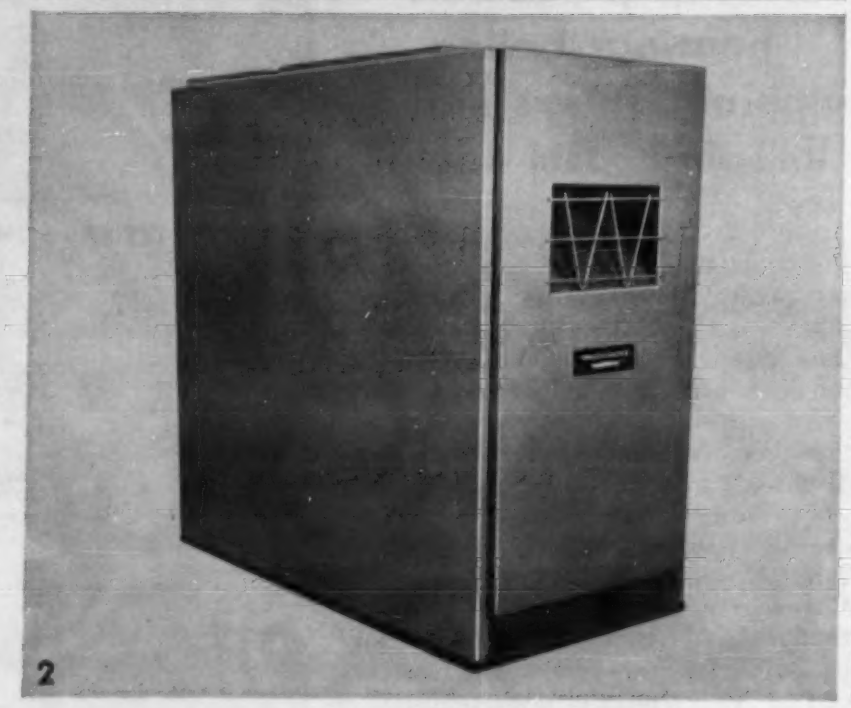

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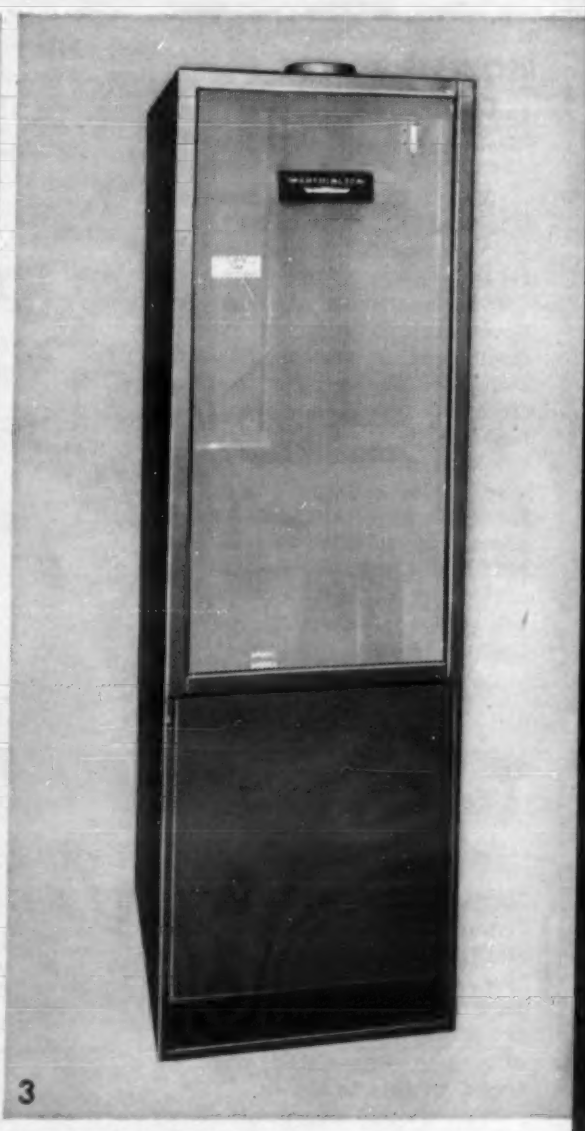


3

1. HORIZONTAL: Model HOH Oil-Fired Furnace. Can be used as horizontal furnace in homes—or can be suspended as blower unit heater in commercial structures. Available in four sizes: 110,000, 150,000, 200,000, and 250,000 BTU Input. Models HOH-150, HOH-200, HOH-250 convert easily to gas-firing, as illustrated.

2. LOW-BOY: Model HOL-100 Oil-Fired Furnace. Compact and efficient. Ideal for basements where low headroom is a problem. Available in 100,000, 125,000, 150,000, 165,000 and 235,000 BTU Input sizes.

3. COUNTERFLOW: Model JBGC-80 Gas-Fired Furnace. Can be used for perimeter heating or any installation where it is more practical to bring the heated air out of the bottom of the furnace. A.G.A.-approved for natural, mixed and manufactured gases. Direct or belt driven blowers. Available in 80,000, 100,000, 110,000 and 140,000 BTU Input sizes.

4. HIGH-BOY: Model HGV-100 Gas-Fired Furnace. Can be put in basement or utility room for perimeter, conventional, small-pipe or other installation. A.G.A.-approved for natural, mixed, manufactured or propane gases. BTU Input per Hour: 100,000. BTU Output per Hour at Bonnet: 80,000. ¼ hp. Blower Motor.

For more information about products advertised on this page use Information Center, page 20.

Suggestions for Dealers--

(Concluded from preceding page)

program in this country, however, was expressed by Demling, who said that "the only way you can get a $1,000 bond guaranteeing comfort from an insurance company is to pay a $1,000 premium.

"With the certified program we're not only qualifying the heating system but also the building it's going into," he cautioned. "You can't heat a sieve."

Demling also emphasized that "a Manual 6 balancing job will cost $30 to $70, and you can't tell how much in advance. You can't do a CAC balancing job in 15 minutes or even in a hour. If you're going to 'certify' jobs, you'd better include an average of $60 just for balancing."

Establishment of a stamp plan to finance national promotion of the Certified program was urged by R. H. Quiggin of Cleveland in a dealer panel. In his plan, the national Warm Air Association would sell stamps at face value to manufacturers —$2 for a furnace, $1 for a conversion burner or blower— which cost would be passed along to the ultimate consumer.

This plan, Quiggin estimates, would provide $3,000,000 a year for such a promotional effort.

"We have to sell the customer so well that he'll demand Certified heating," Quiggin declared. "To help in this we need a simple selling sentence such as 'Do you have a warm air register under every window?' which prospects could ask builders."

Other speakers in the dealer panel, which was moderated by H. F. Brundage of the Brundage Co., were J. B. Kuykendall, Jr., of Charlotte, N. C., and D. E. Hickey of Pittsburgh.

In another panel discussion— on research—D. R. Bahnfleth, J. R. Wright, and M. V. R. Rao, all of the University of Illinois, offered some preliminary results of a study which indicate that forced ventilation of attic space will reduce the cooling load for summer air conditioning as much as 7% to 8% over a 24-hour period at the average daily load.

This reduction in summer load, one contractor indicated, might very well eliminate the necessity of increasing air delivery of a year-round system during the summer cooling season.

Presents Step-by-Step Guide To Determine Costs

A step-by-step guide to help installers determine their operating costs was presented by W. L. Dulle, executive president of E. E. Souther Iron Co., who underlined the need for dealers' understanding their costs better by citing estimates given a builder for a gas heating system in a project of 20 to 30 homes. The bids, Dulle said, ranged from a high of $839 down to $435 per house.

On the technical side, Dr. E. R. Phelps of Wayne State university, reviewed the effects of humidity, emphasizing the harmful results that can occur if the humidity is too low during the heating season.

New Officers Elected

In the annual election of the association, Frank L. Meyer became the new president, succeeding G. W. Denges. Tom I. Byrd is first vice president; C. L. Sapp, second vice president; and Geo. Boeddener continues as secretary-treasurer and managing director.

Board of trustees includes J. F. Knoff, T. W. McNeal, H. F. Randolph, Eugene Cullen, and Homer Brundage.

Promotion of James Martin to the post of assistant managing director was also announced at the convention.

Plans for a summer convention on the west coast were revealed at this meeting. Scheduled for San Francisco June 5 to 7, the event will be cosponsored by NWAHACA, the Warm Air Heating Institute of Northern California, Institute of Heating and Air Conditioning Industries (southern California), and the Portland (Oregon) Warm Air Heating and Air Conditioning Association.

Reviewing the group's activities of the past year, Denges, the retiring president, commented, "Rumors that the association is attempting to promote local dealer associations is unfounded. However, we do think such local organizations would be a great help," he said.

Current membership of NWAHACA now numbers 3,071 dealer-contractors, 190 wholesalers, and 123 manufacturers, Denges also announced.

NO DECEMBER 31 ISSUE

Coming next week will be the final Issue of 1956. It will be the issues of Dec. 24 and 31 combined into one. This 52nd issue of the year will contain the traditional Year-End Index of the Most Significant Stories of 1956. Rest of the usual good material will be there too.

Outdoor Theater Installs Heating, Cooling System

N. TONAWANDA, N. Y.— An unusual heating system, which can be converted to a form of cooling during hot weather, was recently installed here at Melody Fair in Wurlotzer Park to make actors and audience more comfortable during the late summer outdoor shows.

The heating system consists of five silent blowers arranged at intervals around the show tent. Top of the tent has been sealed in, and, according to Thomas I. Finn, general manager, temperature inside can be raised to about 70°.

This temporary installation will be made permanent before next season, Finn said. Blowers will be installed under grilles in the floor to blow cool air through the tent on hot days and warm air on cool days.

Finn explained that this may make it possible to open earlier and continue later in the fall.

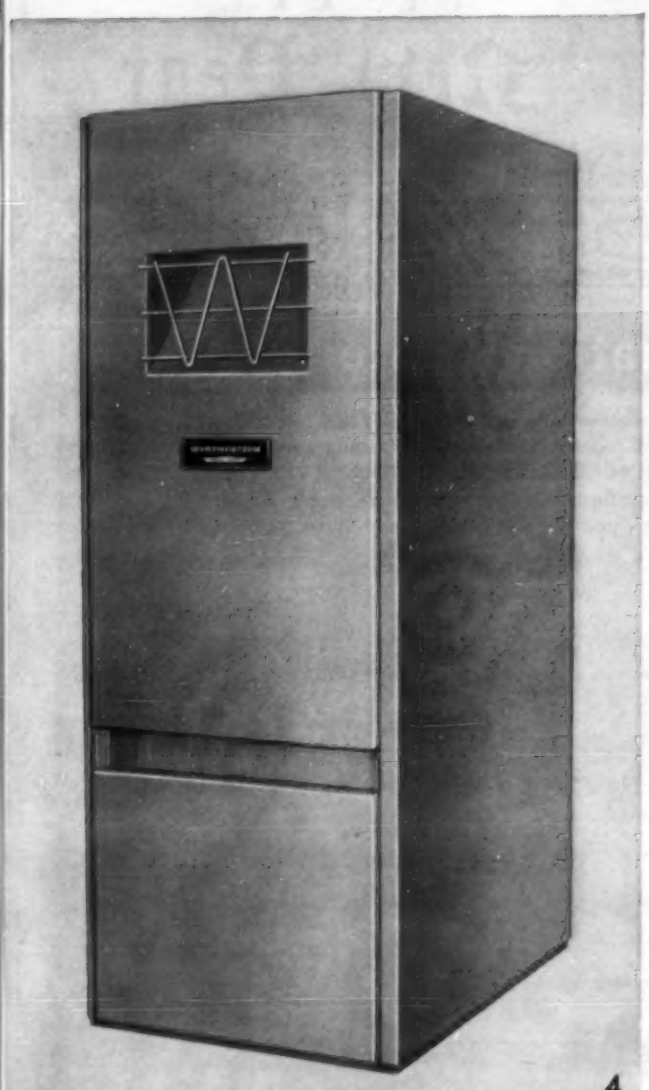
G-E Raises Prices On Some Plastic Parts

DECATUR, Ill. — General Electric Co.'s plastics department has made known price increases of from 4 to 9% on custom molded plastic parts.

Price adjustments were necessitated by increases in labor costs and other operating expenses, according to A. C. Treece, department general manager.

WARM AIR FURNACES

air conditioning equipment . . .
. . . on one policy!



DEALERS! No other furnace line gives you all these competitive selling advantages.

Easy to install. Units shipped factory-assembled and prewired. Attach to any duct system—fit any out-of-way space.

Versatile—ideal for either residential or commercial use. New house or old. Exclusive features for versatility.

Wide choice of models—about 50 types and sizes ranging from 80,000 to 250,000 BTU/hr.

Especially designed for addition of summer air conditioning equipment. High static blowers available for most models and sizes.

Gas or oil-fired units—belt or direct driven blowers.

Exclusive up-draft heat exchanger design allows flue gases to escape—avoids dangerous trapping in pockets. Easily cleaned, long life.

Long flue travel provides greater efficiency—gives more heat transfer through heat exchanger and radiator.

Free floating radiator prevents contact with supports—eliminates noise . . . keeps heat exchanger strong.

Efficient tailored spun glass insulation has aluminum facing—covers entire casing area, increasing efficiency, quiet operation.

Heavy gauge casing cuts down on expansion and contraction noise. Smart, modern in appearance.

U-lock casing prevents heat leaks.

Casing finished on both sides—prevents rust when installed in damp places. Assures long life.

Oversized blower cuts noise and wear . . . consumes less power.

Continuous air circulation eliminates cold spots. Produces blanket of comfortable warmth.

Oil fired units have kiln-fired insulated refractory in combustion chambers—providing quiet, more efficient operation.

Controls provide 100% automatic operation.

Filters—for a cleaner home.

WORTHINGTON

Hard hitting advertising and promotion campaign will pinpoint your store as headquarters for Worthington heating and air conditioning equipment. So get on the bandwagon. Send coupon for complete details *now* on the new complete Worthington furnace line!

SEND COUPON TODAY!
Worthington Corporation, AC&R Division, Harrison, N. J.
Please send details on new complete line of Worthington warm air furnaces.

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Store_____
Street No._____
City_____ Zone_____ State_____
(PLEASE PRINT)

For more information about products advertised on this page use Information Center, page 20.

Water Station Shuts Off 'Instantaneously'

—KEY NO. F-1230—

WESTBURY, N. Y.—T & S Brass & Bronze Works, Inc. recently introduced a new "Electro-Fill" water station with "instantaneous" on-off operation.

A light beam crosses the top of the B-1280 console unit. When the beam is broken by a paper cup, glass, or pitcher, water flows. Withdraw the container and water shuts off, the company said.

"The Riviera" measures 36 in. working height, 42 in. over-all height, 24 in. deep, and 23 in. wide. The mechanically cooled self-contained unit has adjustable legs and ice storage chest.

Rated at 15 g.p.h., the water station has a ⅓-hp. hermetic compressor, removable louver.

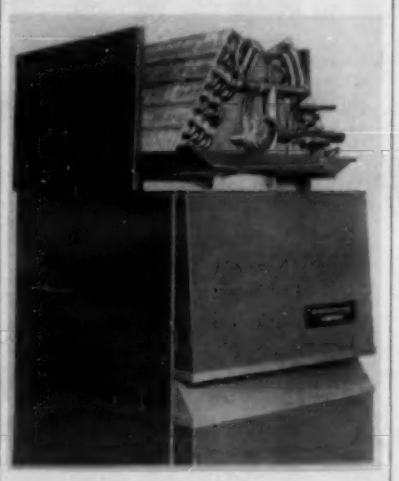
Can Add Evaporator To Lennox Units

—KEY NO. F-1231—

MARSHALLTOWN, Iowa—Lennox Industries, Inc. recently announced introduction of a new evaporator unit for installation with its remote air-cooled air conditioning equipment.

LS2 projects its evaporator surface into the plenum. Easy access to the coils is attained by removing the triangular-shaped front panel.

The cabinet can be installed along with the furnace and evaporator coils added later, the firm said. Each coil assembly has an expansion valve and "eliminators" where necessary, and a condensate pan with connection for 1-in. pipe.



Packaged V-Coils Come In 2, 3, 5-Ton Sizes

—KEY NO. F-1232—

HARRISON, N. J.—V-type cooling coils that can be mounted atop furnaces to provide whole house cooling and dehumidification were announced by Worthington Corp.

Available in 2, 3, and 5-ton sizes, the coils are factory packaged and are ready to operate with any warm-air system after simple pipe connections to remote air-cooled or water-cooled condensing unit.

If air conditioning is desired for the future but not momentarily desired, cabinet can be installed first, then coil slipped in later.

Frigidaire Ranges Have 'Sheer' Styling for '57

—KEY NO. F-1233—

DAYTON—Frigidaire Div., General Motors Corp., has announced its 1957 electric range line with "sheer" styling to merge with squared-up lines of kitchen cabinets.

Included is a new 40-in. range with electric filter which is said to eliminate ordinary oven cooking smoke before it reaches the kitchen; high-speed surface cooking units; heat-minding device to keep foods from burning; and fast-heating sealed broiler unit.

The new 30-in. ranges feature extra large oven with twin doors that operate automatic roll-out shelf.

Both units have new "easy-to-set" automatic oven cooking controls. Instructions are under glass on the back panel, the company said. The user simply sets the two knobs and adjusts oven heat.

HEAT TRANSFER ENGINEERS

World leader in air conditioning has several excellent opportunities for qualified men in long range programs.

MANUFACTURING ENGINEERS

For study and evaluation of methods of manufacturing heat transfer surfaces of all types.

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Happy New Year

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NEW YORK
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EXIMPORT

Information Center

For *more information* on What's New products, current literature and catalogs available, equipment advertised in AIR CONDITIONING & REFRIGERATION NEWS use Key Numbers where designated or specify products advertised and we'll see that you receive this information promptly.

Products Advertised
(list name, page, and issue date)

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What's New or Current Literature Available

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For more information about products advertised on this page use Information Center, page 20.

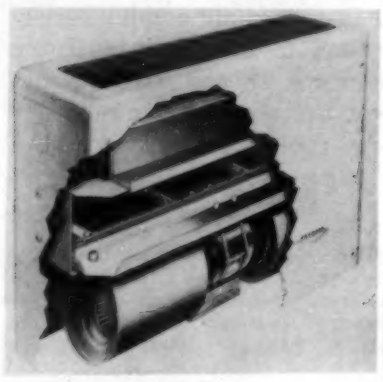
Tilted Steam Coils Introduced by Rempe

——KEY NO. F-1235——

CHICAGO—A new line of heavy-duty, distributor-type steam coils with a special tilted feature to assure drainage of condensate, whether used for vertical or horizontal air flow, has been announced by Rempe Co. here.

"Cover pieces at header and stub ends are perforated to allow passage of measured amount of bypass air, resulting in increased coil capacity," the company said. "Coils are pitched in casing to guarantee full drainage to condensate outlet. They are designed so that every square foot of face area produces equal heating capacity on full or modulated steam supply."

Available with inlet and outlet on same end or on opposite ends, the units can be supplied with gas tight casing.



Cabinet Unit Heater Offered

——KEY NO. F-1236——

MASPETH, N. Y.—Fedders-Quigan Corp. has announced the introduction of the Fedders series 45 cabinet unit heater. It features unit heater volume capacity coupled with console cabinet design.

Said to be ideal for installation in lobbies, gymnasiums, auditoriums, offices, churches, and other large area hard-to-heat structures, the heater is adaptable to a wide variety of mountings.

It may be installed free-standing, semi-recessed, or wall or ceiling hung.

Specifications include: resiliently-mounted motor and centrifugal blowers; non-ferrous finned tubing; and unit design which permits piping to be concealed underneath or run through ends of cabinet.

The series 45 cabinet unit heater delivers up to 117,300 B.t.u. per hour, the company said.

Auto Air Conditioner 'Won't Freeze Up'

——KEY NO. F-1237——

DALLAS—Frigikar Corp. here recently announced its 1957 model 57-UD "Frigiking" auto air conditioner.

Features include "Pushbutton MagneTouch" control which is said to prevent freeze-ups. This assures, according to the company, proper cooling, controlled temperatures, and greater efficiency.

The all-metal control panel fits beneath the dashboard of an auto, a magnetic clutch maintains selected temperatures under automatic control, and the new compressor gives extra capacity at lower speeds, the firm stated.

Refrigerated air, said to be produced within one block of driving, can be directed anywhere in the car, it was explained. Side vents direct cool air at the feet of those riding in the front seat to neutralize engine heat.

It is available for most cars.

Air Powered Machine Notches, Punches

——KEY NO. F-1238——

BUFFALO—A new air power notching and punching machine designed to streamline operations in sheet metal shops and metal working plants was recently introduced here by Niagara Machine & Tool Works.

With 6½-ton capacity and 4¾-in. thread, this machine can be equipped with a large selection of punches and dies for simple or intricate holes, corner trimming, or combination trimming and cut-off, the company said.

A foot valve frees both hands for locating and feeding the material. The ram can be lowered gradually to locate work at marked points and facilitate die changing, it was noted. Throat permits notching and punching well inside sheet edge.

A special duplex setup with two machines mounted on one stand for edge or corner notching eases fabrication of drums, pails, pans,

and similar objects, it was stated. A single foot valve operates both simultaneously.

Optional equipment includes floor stand, feed table with adjustable squaring edge, and a wide variety of notching and punching attachments, the firm said. Machine operates on shop pressure of 80 p.s.i., the manufacturer explained.

MUELLER BRASS CO.

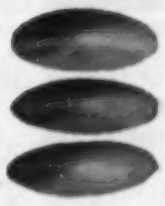
ONLY Linemaster

DIAPHRAGM LINE VALVES HAVE THESE 2 EXCLUSIVE FEATURES

This completely redesigned valve is available in five straight-thru and angle types with flare, solder and M. P. T. connections. See them at your wholesalers . . . Take some along . . . and on your next service call install them . . . You can't do better for your customers.

1. SUPER SEALING

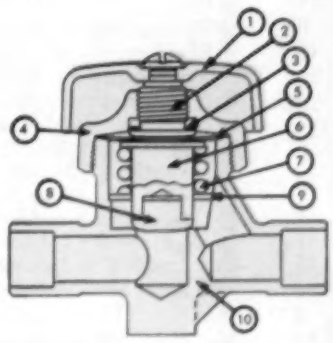
A phosphor bronze diaphragm between two stainless steel diaphragms gives the LINEMASTER an unbeatable combination for super sealing and long life. Diaphragms pressure wear tested for thousands of openings and closings without failure.



2. SUPER SEATING

In the LINEMASTER, tough, resilient molded nylon seat disc insures positive shutoff even if foreign material is lodged against the seating surface. Mueller Brass Co. pioneered and proved the superiority of nylon for "super seating".

PLUS 10 Ways better in design and construction



1. FORGED BRASS HANDWHEEL combines modern appearance and ease of operation
2. UPPER OPERATING SCREW produced from special, high strength bronze
3. NYLON SEAL eliminates operating screw seizure
4. FORGED BRASS BONNET has big husky wrench flats
5. PHOSPHOR BRONZE DIAPHRAGM and two stainless steel diaphragms service tested for thousands of openings and closings
6. STEM ASSEMBLY is guided to assure perfect seat alignment
7. CADMIUM PLATED STEEL SPRING assures positive return action of stem assembly
8. NYLON SEAT DISC is tough and dependable
9. SPRING SUPPORT RING made from solid brass
10. FORGED BRASS BODY sturdy, full flow design

FREE! ➡

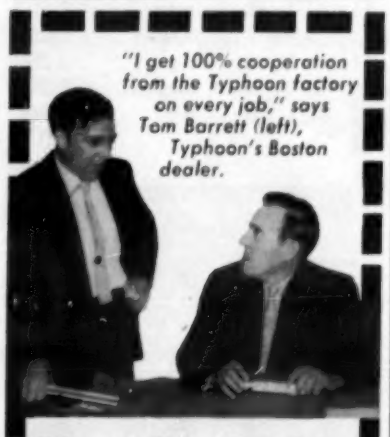
Write today for Refrigeration Kit No. 20
It's packed full of helpful information. Contains:

1) Refrigeration and Air Conditioning Data Book with big, 5-color refrigeration cycle chart
2) Complete Catalog R-155
3) Individual Product Data and Specification Sheets

197

STREAMLINE PRODUCTS

MUELLER BRASS CO. PORT HURON 9, MICHIGAN



"I get 100% cooperation from the Typhoon factory on every job," says Tom Barrett (left), Typhoon's Boston dealer.

Most Profitable
FACTORY-DEALER TEAM
SET-UP IN THE BUSINESS

TYPHOON AIR CONDITIONING

- Commercial Air Conditioners, 2 to 30 tons
- Air Cooled or Water Cooled Condensers
- Residential Year-Round Units
- Packaged Heat Pumps, Residential and Commercial

Find out how a Typhoon Direct Factory Franchise can make money for you. Send in this coupon today.

Typhoon Air Conditioning Co., Inc.
505 Carroll Street, Brooklyn 15, N. Y.
Tell me about a Typhoon Franchise in my territory. Send me bulletin A-15.
Name_____
Firm_____
Address_____
City_____ Zone____ State_____

What Refrigerated Fixtures Are 94 Bristol Food Stores Using?

NEWS Find Little Air Conditioning In On-the-Spot Survey; Closed Meat Cases Most Popular

BRISTOL, Va.-Tenn. — What sort of refrigeration equipment are small city food stores using? What sort of a market do they present to the refrigeration distributor?

Last year, the NEWS surveyed the 235 food stores in the highly industrial city of Flint, Mich. and published its findings in the Nov. 14, 1955 issue.

This year, the NEWS sent a team to Bristol, Va.-Tenn., a smaller community with a more balanced economy. The team poked into every one of the 95 stores within the limits of the twin cities and came up with the data in the accompanying table.

Bristol is a community of about 40,000 progressive and friendly citizens, divided evenly on either side of the state line. On the edge of the TVA country and in the center of a great Appalachian mountain resort area, they make their collective living in metalworking industries, textile mills, tourists, and college students. There are three small colleges in Bristol—Virginia Intermount, Kings College, and Sullins.

Close to no large city, Bristol is a regional center itself, drawing on a trading area of about 100,000 persons devoted to agriculture, coal mining, and vacationers. As a result, its numerous fine residential sections show the evidence of above average incomes for the area.

In the food field, Bristol's remoteness from large urban centers reflects itself in the fact that there are only two chain units in the entire city. One is a Kroger store and the other is a Piggly-Wiggly unit.

All of the other 93 stores are independently owned and operated, though approximately one third of them are reportedly combined in a voluntary buying and advertising group known as "Sav-Mor" stores.

Data on the Kroger unit is not included in this survey. Kroger policy dictates that such information come from a regional office. It has not been forthcoming. However, the Kroger store, a new unit, appeared to be the largest and probably the most refrigerated store in town.

Of the others, only two were what might be considered supermarkets, boasting more than 10,000 sq. ft. of space. The others ranged from "superettes" of from 3,000 to 6,000 sq. ft. down to tiny "middle of the block" store, where an elderly couple sold a few groceries and dairy products out of an ice cream case, a bottle cooler, and a household refrigerator.

The 94 stores surveyed possessed:

1,036 lineal ft. of ice cream and frozen food cases.
763 ft. of closed meat cases.
638 ft. of produce cases.
402 ft. of dairy cases.
192 ft. of open meat cases.
89 beverage coolers.
46 walk-in coolers.
7 reach-in coolers.

Because the Bristolites pride themselves on their mild climate, only three independent stores and the Kroger unit were air conditioned. The three independents used packaged units.

Ice cream cabinets, mostly installed by local dairies, were found in every store. In some of the smaller stores, these were also used to merchandise frozen foods.

Closed meat cases were found in 77 of the stores and open meat cases in only eight. It is interesting to note that only

(Concluded on next page, Col. 4)

In the table below, Bristol food stores are arranged according to status (chain or independent) and then according to size. The square footage in the right-hand column is that estimated for the entire store, not just the selling area.

The asterisk (*) before store numerals 1, 3, 9, and 11 indicate air conditioned stores.

Figures in the first five equipment columns indicate linear feet of space. Figures in the next three columns indicate number of units. Where no symbol follows the figure, the equipment was purchased new. Meanings of the symbols used are explained below the table.

Equipment age indicates the range in years between the most recently purchased piece of equipment and the oldest piece. 0 years means the newest equipment was purchased in 1956. A single figure in this column indicates that all equipment was purchased in the same year.

Because the equipment may have been purchased used, the figures in this column indicate years in the hands of the present owner, not the true age of the equipment. For new equipment, of course, the figure would represent true age.

The letter code in the "Purchased From" column is explained below the table. A single letter generally indicates that all equipment was purchased from the same source. However, where the letter refers to only one type of equipment and others are listed, the source of the others is unknown.

Where this column is blank, source is unknown. Source unknown indicates that the owner did not recall where he purchased the equipment. Or the owner may have not been present and the person interviewed did not know the source.

Where more than one letter is used, the equipment was purchased from several sources. In most cases it will be obvious which equipment came from which source. Only when the letters "a" and "g" occur together will the source of particular equipment be obscure. A clue is that only used equipment was purchased from other grocers.

Only in four instances did a dairy supply anything other than an ice cream or frozen food case. For stores 26 and 51 they supplied dairy cases. For stores 79 and 92 they supplied beverage coolers, which were used to sell bottled milk.

Store	Closed Service Meat Cases (Ft.)	Open Meat Cases (Ft.)	Frozen Food & Ice Cream Cases (Ft.)	Refrigerated Produce Cases (Ft.)	Dairy Display Cases (Ft.)	Reach-Ins (No.)	Walk-Ins (No.)	Bottle Beverage Coolers (Chest) (No.)	Equipment Age (Years) (Newest-Oldest)	Purchased From	Store Area (Sq. Ft.)
Chains											
* 1	(Data Not Available)										
2	10	12	28	12	20	....	2	....	1–10	h	4,500
Independents											
* 3	....	60†	58‡	24†	26†	1†	2†	....	0– 4	dg	18,000
4	30	....	30	36	28	....	....	....	....	a	14,000
5	....	40	36	33	28	...	3	1	0– 5	a	5,600
6	11†	(Seafood, poultry only)					2	....	0–16	e	5,000
7	10†	....	10	20	5	....	1	1	2–17	abdf	4,500
8	10	....	14	....	....	....	....	1†	0– 6	ac	4,000
* 9	....	41	32	24	16	2	1	1	1– 6	abef	4,000
10	27	....	20	30	10	....	2‡	1	1–16	abd	3,750
*11	30†	....	20†	10†	10	....	2‡	1†	1– 4	adg	3,500
12	10	....	20	11	11	....	1	1	0– 7	abd	3,200
13	8	....	16†	12	12‡	....	1†	1†	1– 8	ag	3,200
14	10	....	14	12	12†	....	1†	1	0– 9	abg	3,200
15	....	....	8†	....	....	....	....	2‡	9	abd	3,200
16	12§	....	10§	12§	....	....	....	1§	....	....	3,000
17	33§	....	18§	16§	22§	....	1§	....	....	....	3,000
18	12	....	22†	8	....	....	1§	1	3–16	abdg	3,000
19	20	10	13	10	6	....	1	....	2–13	ad	2,800
20	10	11†	23	16‡	10	....	1	1	0– 8	ab	2,640
21	10	10	18	10	10	....	1	1	2–10	abde	2,500
22	28§	....	30§	22§	11§	....	2§	....	....	....	2,400
23	10	....	12†	8	6†	....	1	1†	1–14	abe	2,400
24	10§	....	14	6	6†	....	....	1§	0– 5	adf	2,400
25	6§	....	6§	22§	6§	....	....	1§	....	....	2,400
26	8†	....	6	8§	4†	....	....	1†	6–15	abd	2,400
27	12§	....	11	12	10§	....	1§	1	4–10	abd	2,400
28	10	....	20‡	10	8	....	....	1	3– 6	abd	2,100
29	10§	....	12§	8§	....	....	....	2§	....	....	2,000
30	6†	....	5†	6†	....	....	....	....	....	g	2,000
31	10	....	20	10	6	....	1	1	4–10	ad	2,000
32	8§	....	11	6	....	1§	....	1§	4– 8	ad	2,000
33	10†	....	11	10	10	....	....	1	0–10	abdg	2,000
34	10	....	11	....	....	....	1	....	8–10	ad	1,900
35	8	....	8	16	....	....	....	1†	11–18	ab	1,800
36	4	....	4	....	....	....	....	1	10–14	bg	1,800
37	....	....	10‡	....	10	....	1†	1	0– 5	abdfg	1,680
38	10†	....	5	....	8	....	....	1§	0– 1	dg	1,650
39	8	....	9	10	....	....	....	2†	3–18	ad	1,650
40	6†	....	5	8	....	....	....	1	5– 9	adg	1,600
41	8	....	14	....	14	....	2	1	5	a	1,600
42	8	....	17‡	8	....	....	1†	1§	0– 6	a	1,600
43	10§	....	8§	6§	....	....	....	1§	....	....	1,600
44	16	....	9	....	....	....	1	....	4–19	ad	1,564
45	10§	....	6§	8§	....	....	1§	....	....	....	1,500
46	8†	....	14‡	10†	6†	....	1†	2†	0– 5	adg	1,500
47	6	....	5†	....	....	....	....	1†	....	....	1,500
48	6§	....	5†	....	....	....	....	1†	0– ?	dg	1,500
49	8†	....	15	10†	9†	....	1†	1†	0– 5	abd	1,500
50	10	....	6	8†	....	....	1†	1†	2–10	ad	1,500
51	6	....	5	....	4	1†	....	2	1–15	abd	1,400
52	8§	....	4	....	....	....	....	3‡	1–10	bdf	1,200

(Concluded on next page)

Dependable Temperature and Pressure Switches

Because these sturdy Bulletin 836-837 controls have no "dead center" and no bearings to cause friction . . . operation is accurate and positive. Bulletin 836-837 will give you complete information. Please write for it!

Allen-Bradley Co.
1313 S. First St.
Milwaukee 4, Wis.

In Canada—
Allen-Bradley Canada Ltd.
Galt, Ont.

ALLEN-BRADLEY
SOLENOID MOTOR CONTROL
QUALITY

For more information about products advertised on this page use Information Center, page 20.

(Concluded from preceding page)

Store	Closed Service Meat Cases (Ft.)	Open Meat Cases (Ft.)	Frozen Food & Ice Cream Cases (Ft.)	Refrig-erated Produce Cases (Ft.)	Dairy Display Cases (Ft.)	Reach-Ins (No.)	Walk-Ins (No.)	Bottle Beverage Coolers (Chest) (No.)	Equip-ment Age (Years) (Newest-Oldest)	Pur-chased From	Store Area (Sq. Ft.)
53	10†	....	6†	10†	....	....	....	1†	0– 4	adg	1,200
54	6	....	10‡	....	....	....	....	1	5– 9	bcd	1,200
55	....	....	4†	....	3	....	....	1†	1– 5	ad	1,200
56	11	8	13	11	6	....	1	....	0–10	ade	1,200
57	6§	....	6§	....	....	....	....	2§	....	....	1,200
58	....	....	5	....	6†	....	....	1	10–13	abd	1,200
59	10†	....	11‡	11	....	....	....	1†	....	adg	1,040
60	6	....	6†	8	....	....	....	1	....	abd	1,000
61	6§	....	10§	8§	....	....	....	1§	....	....	1,000
62	5	....	16	....	....	....	1†	1	1– 8	abde	1,000
63	8§	....	5§	....	....	....	....	1§	8	....	1,000
64	16	....	8†	12†	6	....	1†	....	4	ag	1,000
65	6†	....	12†	....	4†	....	1†	1†	....	g	900
66	6†	....	5	8	....	....	1	1	2– 4	abdg	900
67	11†	....	11†	....	....	....	1†	1†	....	g	900
68	8†	....	6	6†	....	....	....	1†	0– 3	abd	800
69	8†	....	10	....	....	1†	....	1†	4– 5	ag	800
70	8§	....	20§	....	6§	....	....	....	....	....	800
71	6§	....	6	8§	....	....	....	1§	4§	cd	800
72	6†	....	5†	....	....	....	....	1	2– 3	bdg	720
73	10†	....	5	10§	....	....	....	1†	4	dg	700
74			(Meat Only)				1	....	10	e	700
75	....	....	6‡	....	6	....	....	1	3	abcd	676
76	10§	....	5†	....	....	....	....	2†	1	adg	600
77	6§	....	6§	....	....	....	....	1§	....	....	600
78	10§	....	6§	....	....	....	....	....	....	....	600
79	8	....	9	....	....	....	....	2‡	2– 8	acd	600
80	†¶	....	6†	¶Household Refrigerator						d	600
81	6	....	6	10	5†	....	....	2‡	2– 8	adg	600
82	5†	....	3†	....	....	....	....	1†	0–10	adg	600
83	10†	....	3†	....	....	....	....	1†	1–10	dg	576
84	....	....	4†	....	4†	....	....	2†	....	....	500
85	6	....	10	....	6§	1	1†	....	6–11	ad	500
86	....	....	10	....	....	....	....	1†	3– 5	ad	450
87	6§	....	5§	....	....	....	....	1§	....	....	400
88	6	....	5	....	....	....	....	1	4–11	abd	400
89	8†	....	9†	....	....	....	....	1†	0– 1	g	400
90	....	....	4†	20†	....	....	....	1†	....	ad	400
91	....	....	14§	....	6§	....	....	1§	....	....	350
92	....	....	3†	....	....	....	....	1†	5	d	300
93	....	....	4	....	....	....	....	3†	2– 6	dg	252
94	8†	....	6§	8†	....	....	....	1§	7	ag	200
95	....	....	4	....	....	....	....	....	....	d	200
Total	**763**	**192**	**1,036**	**638**	**402**	**7**	**46**	**89**			
Stores With	**77**	**8**	**94**	**51**	**41**	**6**	**37**	**76**			

* Air conditioned.
† Purchased used.
‡ Some purchased new, some used.
§ Age, from whom purchased, unknown.

a Refrigeration equipment dealer.
b Beverage cooler purchased from bottler.
c Freezer purchased from appliance store.
d Freezer and/or ice cream cabinet supplied by dairy.
e Built walk-in cooler himself.
f Food wholesaler.
g Other grocer.
h Chain headquarters.

CLOSED MEAT CASES such as these are still predominant in meat merchandising in Bristol. Through these three cases, it is reported, pass as large a volume of meat as in any store in the city.

Bristol Study--

(Concluded from preceding page)

three stores depended solely on open meat merchandising. The others used both open and closed cases.

While experience with open type meat cases was good, there was still a strong preference among most of the active food men for the closed type case.

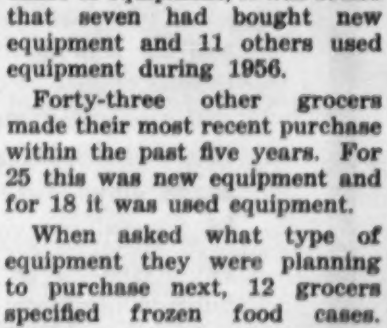
While 51 stores possessed produce cases and 41 had dairy cases, most of the smaller stores combined their functions, merchandising dairy products, lunch meats, and produce from the same case. Both lack of floor space and lack of capital seemed to dictate this doubling up.

Seventy-six of the stores possessed chest-type beverage coolers. A few of these stores, as well as a few others, employed the upright automatic beverage vendor, which was not considered in this survey.

It was noted that the grocers owned their beverage coolers while their ice cream cabinets in most cases were furnished by the dairy. It was explained that a Virginia state law prevents bottlers from furnishing retail equipment.

While many of the grocers were able to report accurately on the age of their equipment, a large number had no idea as to its true age. Most in this category had bought the business completely outfitted with its present equipment a few years before. Others bought some of their equipment used.

Still others had had the equipment so many years that the memory of its purchase was extremely vague. The ages given in the accompanying table are the length of time the equipment has been in the hands of the present owner.



ONE OF THE MOST MODERN stores in Bristol—one of the four that are air conditioned—is Slagle's market. New equipment has rapidly expanded the store's frozen food business, more than tripling volume in the past year. Frozen food department is seen between white jacketed clerks at right.

As might be expected, the more aggressive food merchants who did a substantial volume of business possessed the newer equipment, while many of the quiet, side street neighborhood stores had equipment of ancient vintage.

In checking on when each grocer made his most recent purchase of equipment, it was found that seven had bought new equipment and 11 others used equipment during 1956.

Forty-three other grocers made their most recent purchase within the past five years. For 25 this was new equipment and for 18 it was used equipment.

When asked what type of equipment they were planning to purchase next, 12 grocers specified frozen food cases. These were by far the greatest in demand.

Seven merchants mentioned produce cases, six dairy cases, three open meat cases, and two walk-in coolers. One said he was going to air condition his store.

Three said they were planning new stores with new equipment across the board.

Seventy of the grocers revealed no plans for purchasing any additional equipment.

Of the 76 grocers who were able to give any indication of where their equipment came from, 54 bought at least one piece from a local refrigeration equipment dealer. Of these, 40 named either of two dealers, one of whom is no longer in business.

SO HALSTEAD & MITCHELL ENGINEERS SAID:

"LET'S STOP COOLING TOWER RUSTING and ROTTING!"

Halstead & Mitchell

BESSEMER BUILDING, PITTSBURGH 22, PA.

RUSTING

There's no "one-coat" protection which will stop cooling tower rust. Needed are super-strength bonding of protection to metal, toughness, inertness, flexibility, and a water-tight barrier. Only by Halstead & Mitchell are you offered the 3-coat protection of Vinsynite, Vinyl Zinc and chlorinated rubber — the most advanced protection ever devised to prevent cooling tower steel from rusting.

ROTTING

We do more than praise the long life of wood used in our wetted decks —we are the *only* manufacturer who offers a 20-Year Guarantee on wetted deck wood against rotting or attack by fungus.

AT LEADING WHOLESALERS EVERYWHERE

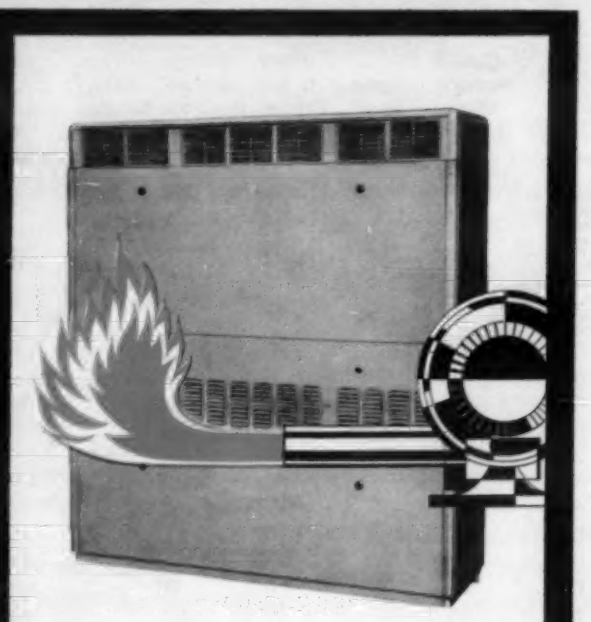
SUPER-FLO
FILTER-DRIER

MOLDED REMCAL DRYING
FIBERGLAS DEPTH FILTERING

Check Super-Flo's amazing low price, for both original equipment and replacement, against ordinary driers which do not have Super-Flo molded drying elements, massive fiberglas depth filters and spun-end copper shells. Available to the trade through wholesalers everywhere.

REMCO INCORPORATED ZELIENOPLE, PA.

For the First Time- The News Earmarks Two Big Issues for Heating and Air Conditioning Show



PRE-SHOW ISSUE!

For the first time, AIR CONDITIONING & REFRIGERATION NEWS will devote two separate issues to cover the 13th International Heating & Air Conditioning Exposition to be held in Chicago, February 25 through March 1. The February 4 issue of the NEWS will carry complete pre-show information. So, if you are among the exhibitors, this is your chance to tell your prospects and customers about the products you will display and your location at the show. Take advantage of this big pre-show roundup. Reserve your space now—enough to tell your whole story—to pre-sell your prospects for maximum show results.

SHOW ISSUE!

First day of the exposition the AIR CONDITIONING & REFRIGERATION NEWS Show Issue will be distributed to exposition visitors. For advertisers in the Show Issue it represents a bonus circulation of many thousand. But—equally important—is the added readership, added interest in the exposition roundup issue. Those attending the exposition will consult the advertisements frequently to line up their "things to see" agenda. Those unable to be there will attend the show through the pages of the NEWS. Either way, your advertisement will get maximum attention, maximum readership. Now is the time to reserve your selling space.

CIRCLE THESE DATES ON YOUR CALENDAR

Pre-Show Issue publication date: February 4, 1957

Convention Issue publication date: February 25, 1957

Last forms close: 10 days preceding the date of issue

Don't miss this selling opportunity during the Heating & Air Conditioning Show.

A Special Merchandising Offer to NEWS Advertisers

1. Special "As Advertised In AIR CONDITIONING & REFRIGERATION NEWS" placards for your products on display at the Heating & Air Conditioning Exposition inviting passers-by to read your complete selling story.

2. Copies of the NEWS—at reduced rates—in which your advertisement appears for mailing to customers and prospects you select.

3. Reprints of your advertisement will be available at cost. Ask your NEWS representative for suggestions on how you may take advantage of the special merchandising service of the NEWS, both at the show and afterward.

AIR CONDITIONING & REFRIGERATION

The Newspaper of the Industry

NEWS

450 WEST FORT STREET, DETROIT 26, MICHIGAN

THE NEWSPAPER THAT CARRIES MORE ADVERTISING BY FAR THAN ANY OTHER PUBLICATION IN THE FIELD.

NEW YORK, 521 FIFTH AVE.
MURRAY HILL 2-1929-9
ROBERT M. PRICE

CHICAGO, 134 S. LA SALLE ST.
FRANKLIN 2-8083
ALLEN SCHILDHAMMER

LOS ANGELES, 4710 CRENSHAW BLVD.
AXMINSTER 2-9551
JUSTIN HANNON

DETROIT, 450 WEST FORT ST.
WOODWARD 2-0924
J. B. SULLIVAN

Survey Shows

Air Conditioners Most 'Wanted' Items In Chicago

CHICAGO—Rated at the top of the list of "appliances preferred next" in a Chicago metropolitan household survey were air conditioners, the Chicago *Tribune* found.

Of some 3,000 persons queried, 22.6% said they preferred to buy an air conditioner ahead of any of the other eight major appliances covered in the study. Air conditioners are now found in only 10% of the homes in the area, it was stated.

When questioned further, one out of every three of those interviewed indicated he wanted to buy the preferred appliance within the next year. One of every 10 reported "definite" plans to do so.

Home food freezers, washers, and dryers also figured prominently in Chicagoland residents' appliance purchase plans, it was revealed.

Refrigerators are the most common major appliance in the Chicago area, it was noted. Of the metropolitan area total of 1,698,000 units, more than half are over five years old. The *Tribune* study showed that six of every 10 refrigerators owned and purchased new by Chicagoland households were bought in 1951 or before.

Room Unit Dealers Get Guaranteed Price, Special Dating, Return Privileges

NEW YORK CITY—Guaranteed pricing, full return privilege, and special dating are among the features of an air conditioning program recently offered dealers by Emerson-New York.

To be eligible dealers must have placed orders by the end of November and accepted immediately two air conditioning units for each of their outlets.

Price is guaranteed until July 15, while the return privilege is given until June 15. Bill-dating calls for one-third payment in May, another third in June, and the final third in July. There will be free delivery until Jan. 15, and free floor plan.

A display, valued by the distributor at $25, is being given for orders placed at the dealer in November.

The distributor was considering plans to run ads over dealers' names, the company pointed out.

York Names Electra Room Unit Outlet

YORK, Pa.—Electra Merchandising Distributors, Inc. of Albany, N. Y. was recently named a York room air conditioner distributor for York Corp., subsidiary of Borg-Warner Corp., according to R. E. Cassatt, commercial sales manager.

Aaron Reifler is president of Electra and Charles G. Houghtaling is advertising and sales promotion manager.

Distributor Offers Room Unit Dealers Price Protection, Return Privileges

NEW YORK CITY—Bruno-New York is offering its dealers full return privileges, merchandising bonuses, and price protection in a program to stimulate early purchase of 1957 RCA Whirlpool room air conditioners.

Calling its program "Rx-Prescription for Profits," the distributorship said the plan was subject to withdrawal on notice. It will last, it was added, until the first of the year and then be reviewed.

As outlined, the plan involves a full return privilege for the dealer on all air conditioners he buys before Jan. 15. Anything bought before that date will be delivered free.

With every order of three or more units the dealer will receive free a permanent fixture, valued by the distributor at $40. It is an animated motion display featuring the line's electronic filter. Three units are required to fill the display.

Any dealer who purchases 12 units is required to take only three by Jan. 15 to be eligible for a 12-lot price, free delivery, and a bonus unit. This is a ¾-hp. room air conditioner listing for $279.95. The bonus is given when the 12th unit is taken.

If 60 air conditioners are ordered, and a dozen taken by Jan. 15, the dealer will receive carload price and free delivery. If the full order is taken by April 15, he receives special dating terms: one-third in May, one-third in June, and the final third in July. He also gets a bonus ¾-hp. deluxe room air conditioner for each 12 units he takes, and if he completes the 60-piece order by April, he'll get an additional bonus room unit, making a total of six. If the order is completed by Jan. 15, he'll receive eight bonus units.

ATTENTION . . . OEM & WHOLESALERS—

DRYERS—STRAINERS—ACCUMULATORS

✓ In all spun copper
✓ with SAE flare and solder connections
✓ custom made to specifications
✓ designed for top efficiency, maximum protection of all refrigeration systems
✓ specialty items also stocked

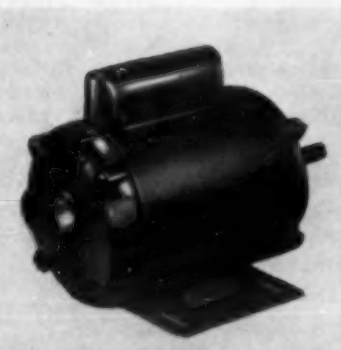
Write Today for Catalog & Price Data

WABASH CORPORATION 2300 SOUTH WESTERN AVE. CHICAGO 8, ILLINOIS

Line sketch shows exclusive totally-enclosed, single phase integral hp motor.

Another ballot for product protection . . .

Another vote for pay-off performance



NEW FRACTIONAL HP MOTORS
in 56 frame size, rigid or resilient base, totally-enclosed fan-cooled, are offered.

INTEGRAL HP MOTORS
offered in single phase, 1 thru 7½ hp and polyphase 1 thru 150 hp. Old and new NEMA frame sizes available, 1 thru 10 hp.

Sound investment for product success . . . A. O. Smith motors . . . application-engineered for quiet operation, low maintenance, long-life service

IT'S simply good business to insist on A. O. Smith fractional and integral hp motors for blowers, exhaust and ventilating fans. Since these motors *live up* to your best product designs — you'll never have to *live down* ragged performance in the field.

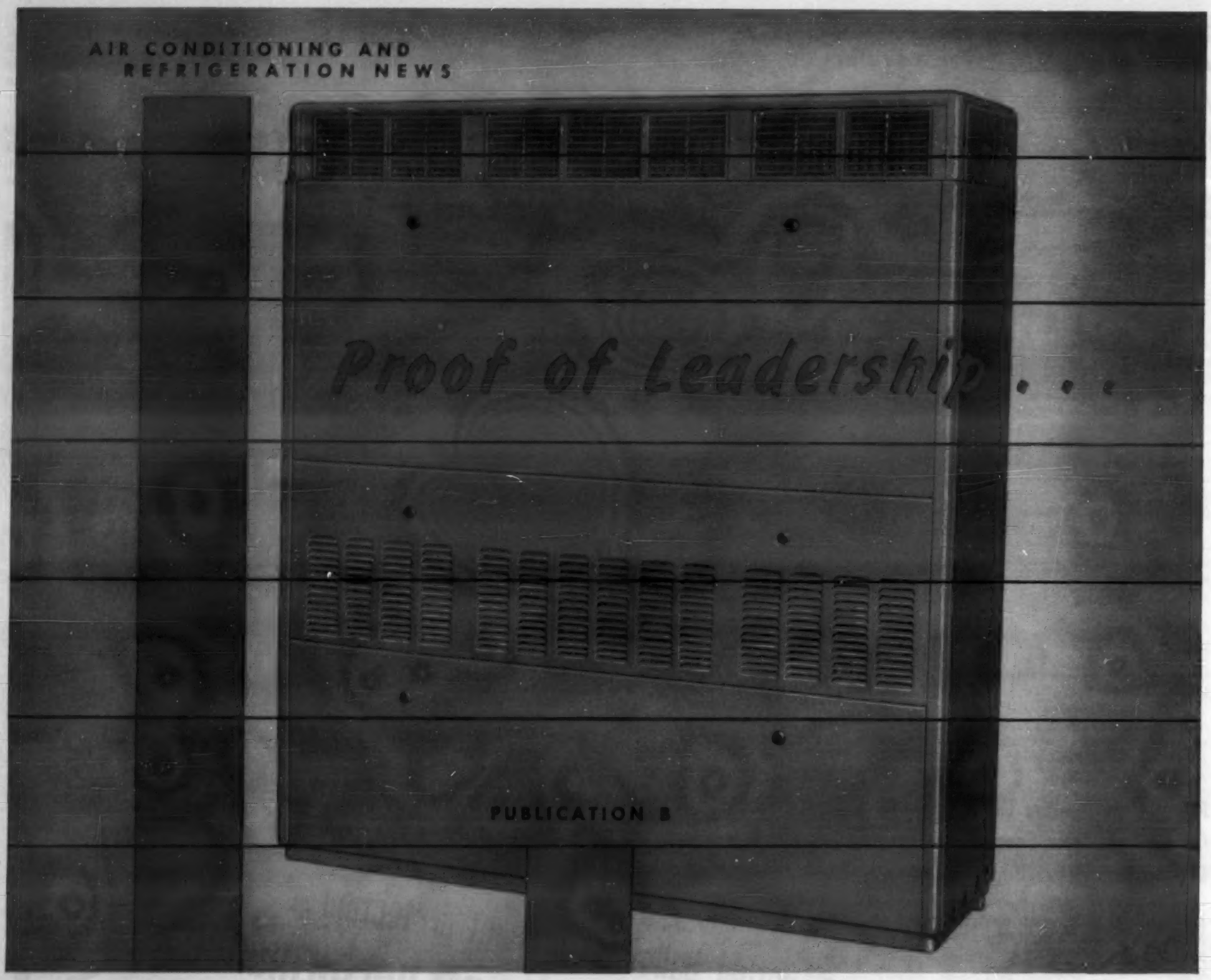
Application-engineered to match your product perfectly — A. O. Smith motors offer progress-pacing features that add up to sure power in a smaller, lighter package . . . complete customer satisfaction.

Integrals are built in single phase (1 thru 7½ hp) and polyphase (1 thru 150 hp) in various speeds and frequencies. Fractionals are offered with many variations to meet both standard and custom requirements, ¼ thru 1 hp, 56 frame size in rigid or resilient base. FHP motors with special flanges are also available.

And more than 270 service stations, strategically located throughout the United States, give you low cost, 24-hour motor repair and parts replacement service.

Through research . . . a better way

A.O.Smith
CORPORATION
ELECTRIC MOTOR DIVISION
Tipp City, Ohio
International Division: Milwaukee 1, Wisconsin



The NEWS carries nearly 7 times more commercial air conditioning advertising . . .

Packaged units are sold first through the News

For over 30 years AIR CONDITIONING & REFRIGERATION NEWS has had the position of leadership and the title "newspaper of the industry." Today, this reputation is the most constant fact in our continually-growing, fast changing, dynamic industry.

AIR CONDITIONING & REFRIGERATION NEWS has the highest paid circulation by far and annually carries more than twice as much total advertising as any other publication in the field.

In the vital market for commercial packaged air conditioning alone, AIR CONDITIONING & REFRIGERATION NEWS has unequalled editorial influence among contractor-dealers. What's more, AIR CONDITIONING & REFRIGERATION NEWS carries *seven times as much* commercial packaged air conditioning lineage as any other medium in the industry!

A recent readership check of air conditioning contractors in the Detroit area showed that 62% were paid NEWS subscribers and, more importantly, this 62% made 89% of all installations.

Any way you look at it, AIR CONDITIONING & REFRIGERATION NEWS is indeed *the* newspaper of the industry.

For increased sales tomorrow, increase your advertising space today, in the NEWS. Do the first job where the first job is being done!

Contact one of our advertising representatives for your copy of "Commercial Packaged Air Conditioners at Work."

AIR CONDITIONING & REFRIGERATION

The Newspaper of the Industry

450 West Fort Street, Detroit 26, Michigan

NEW YORK, 521 Fifth Ave., MUrray Hill 2-1928—9, Robert M. Price.
CHICAGO, 134 S. LaSalle St., FRanklin 2-8093, Allen Schildhammer.
DETROIT, 450 West Fort St., WOodward 2-0924, J. B. Sullivan.
LOS ANGELES, 4710 Crenshaw Blvd., AXminster 2-9501, Justin Hannon.

THE NEWSPAPER THAT CARRIES MORE ADVERTISING BY FAR THAN ANY OTHER PUBLICATION IN THE FIELD.

ABP

ABC AUDITED PAID CIRCULATION

ROUND pipe which feeds low velocity baseboard heat outlet seen far center.

Year-Round Comfort

Low Velocity Baffled Baseboard Warm Air Heat System Paired with Home Unit

ARLINGTON, Va. — A new type of baseboard heating system is being paired for the first time with an Airtemp residential air conditioner to provide year-round comfort in a split-level model home constructed here by Price & Co., builder.

The $26,950 home divides 1,930 sq. ft. of floor space on four levels between seven rooms and 2½ baths. It will be cooled by a 3-ton air conditioner and heated by a warm air furnace feeding an "Aeristo" baseboard system.

The Aeristo baseboard system is an invention of M. P. Smith, a Fairfax, Va. heating contractor, who has applied for a patent on it.

Baffled so that static pressure equalizes throughout its length, the baseboard is designed to be installed across the outside wall from corner to corner. Sufficient air is supplied through a round duct beneath the floor to overcome room heat losses.

This air, Smith explains, is delivered outward and down toward the floor at a very low velocity. The movement of air in front of the delivery opening is hardly noticeable, he said.

The Aeristo baseboard measures 5½ in. high and 2 in. deep. It comes in 8-ft. lengths with joining straps. It may be fastened to studs or furring strips before plastering.

On old work, Smith said, it may be fastened to the wall in the same manner as regular wood baseboard.

Smith recommends individual room returns with his system, either high in the opposite wall or in the ceiling. This, he said, assures adequate circulation of air in each room and eliminates stratification with no noticeable movement of air. It produces, he added, an even feeling of heat throughout the entire living zone.

In the model home, high wall returns are used. These also double as supply runs for the air conditioner, while the baseboard supply system acts as its return, according to Alexander MacLean, vice president of Wilson Supply Co., Airtemp distributor in this suburban Washington area.

To reduce the cooling load, he noted, an overhang was constructed on the south side of the home and a fan has been installed in the attic. The fan will turn on automatically when the attic temperatures reaches 80 to 85° F. to remove any excess heat there.

Walls and ceiling are insulated, it was explained.

NWAHACA Suggests 7 Checks 'Reputable' Serviceman Makes on Furnace

CLEVELAND — A suggested list of checks that the reputable serviceman should make in servicing or checking furnaces was recently published by the National Warm Air Heating & Air Conditioning Association.

1) Inspect furnace flue pipe and chimney for any deterioration or blockage and make needed corrections.

2) Eliminate any leaks or openings in furnace combustion chamber and also clean out soot if any has accumulated.

3) Check and adjust furnace fuel burner and pilot light for correct flame characteristics as well as fuel input.

4) Check and adjust all automatic controls for proper functioning, particularly those having to do with the safe operation of the equipment.

5) Clean and check furnace humidifier for its correct operation.

6) Inspect the air filtering facilities of the equipment and install clean filters. When replacing filters make certain they fit snugly so there will be no air leakage around the edges of the filters.

7) Oil the fan-bearing assemblies and the fan motor; check and adjust the motor and fan alignment and fan belt tension.

Ranco Declares 30¢ Quarterly Dividend

COLUMBUS, Ohio—Directors of Ranco Inc. recently declared a quarterly dividend of 30 cents per common share, payable Dec. 28 to stockholders of record Dec. 7.

FRICK Valves

Are available, with sealcaps, in sizes of ¼" through 8", for all refrigerants including the Freons, Genetrons and Isotrons. Standard valves up to 14". Many built-in advantages. Stocked in principal cities. Ask for new catalog of valves, fittings and supplies: write

FRICK CO.
WAYNESBORO, PENNA.

WAGNER ELECTRIC MOTORS...THE CHOICE OF LEADERS IN INDUSTRY

New headquarters building of Rotary International at Evanston, Illinois

Wagner Motors provide quiet circulating pump power at new headquarters of Rotary International

Electric motors that drive heating system pumps need plenty of electrical and mechanical stamina to hold up under the hard, steady grind expected of them. And, they must be unusually quiet, too. Wagner Motors assure this kind of reliable service—and quiet operation.

That's why Bell & Gossett Company, manufacturers of Hydro-Flo Circulating Pumps, chose Wagner Motors for their Universal Pumps used in the new Rotary International Headquarters at Evanston, Illinois.

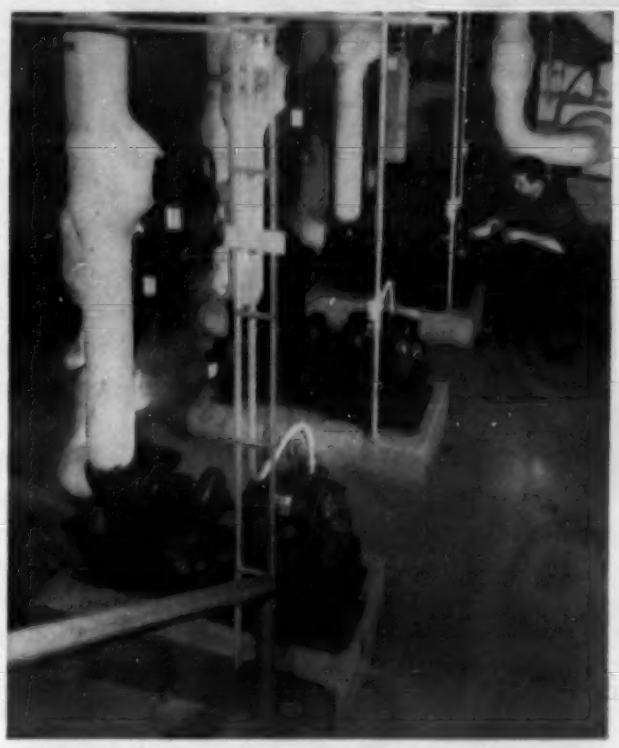
Part of this installation is shown at right. The motors in the foreground are 7½ horsepower, quiet-type Wagner Polyphase Motors, especially selected for smooth balance and quiet operation. The other motors in this installation are standard, resilient mounted 5 horsepower Wagner Polyphase Motors.

Here's where you can take a tip from Bell & Gossett . . . when you need dependable, *quiet* motors—5 horsepower or below—choose Wagner resilient mounted *standard* motors.

They are available with resilient bases in both sleeve and ball bearing types. You save money—and get the quiet operation that only a specially selected or resilient mounted motor can give.

Perhaps you have a specialized motor application . . . if so, remember, there's a Wagner motor to fit every need . . . a complete line for all current specifications with a wide variety of enclosure types and mountings.

Your nearby Wagner engineer can help you select the *right* motor to meet your specifications. Call the nearest of our 32 branch offices or write us.



These Wagner standard motors, in ratings up through 5 horsepower, can be used for specialized applications because they are available in sleeve bearing or ball bearing models with rigid or resilient mounts.

Wagner Electric Corporation
6441 Plymouth Ave., St. Louis 14, Mo., U.S.A.

BRANCHES AND DISTRIBUTORS IN ALL PRINCIPAL CITIES

Wagner Electric Corporation EST. WE 1891

W1156-11

ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES • AUTOMOTIVE BRAKE SYSTEMS—AIR AND HYDRAULIC

Carrier Names McMahon Retail Ad. Mgr.

SYRACUSE, N. Y.—Appointment of Robert J. McMahon as retail advertising manager was announced by Leslie M. Beals, director of advertising and sales promotion for Carrier Corp.

McMahon has been a member of the Carrier advertising staff since 1953 and before joining the company had broad experience in related advertising capacities. In his new position he will be responsible for supervision of Unitary Equipment Div. advertising and sales promotion at the field level.

During World War II he served as a lieutenant colonel on the planning staff of Gen. Douglas MacArthur and was responsible for writing the Pacific Theatre daily operations summary. Following the war he wrote for several CBS radio programs.

What Was New

At the RACCA Convention

Pictures on this page show displays at the recent Refrigeration and Air Conditioning Contractors Association convention in Miami Beach, Fla. For more information concerning products shown here, please use the key numbers and the "Information Center" blank on page 20 of this issue.

—KEY NO. F-12310—
ALL BRONZE PUMP for salt water conditions and marine applications was exhibited by Ned R. Hannahs (l.) of Barnes Mfg. Co. It was made to order for Hill-York Corp. represented here by R. S. Lafferty, secretary-treasurer (c.) and E. G. Carroll, president.

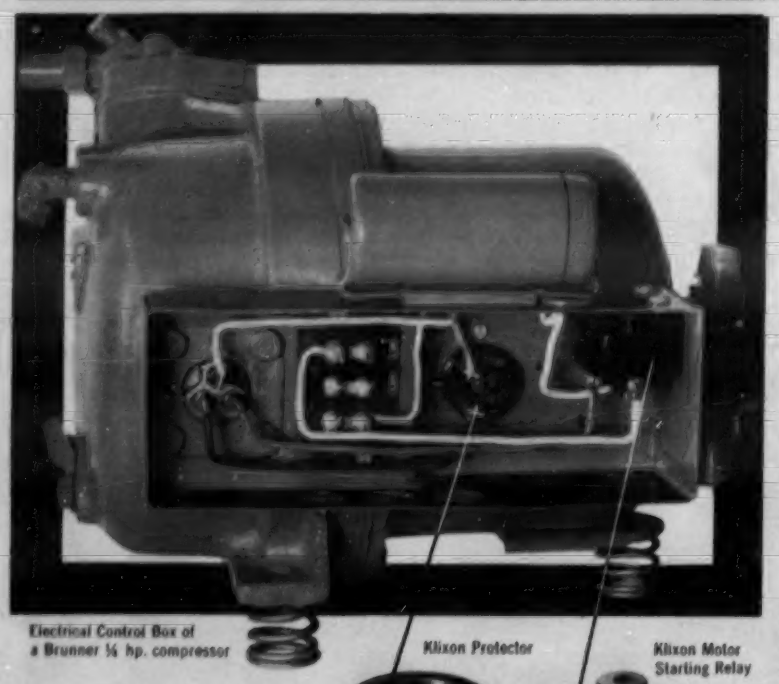
———KEY NO. F-12311———
IN DEEP CONCENTRATION over Brunner Mfg. Co.'s new NR 30 compressor for higher horsepower applications with "F-12" and "F-22" are Fred Hoefer, Florida representative for Brunner (l.) and George Howe, Chicago contractor. The 4-cylinder V-type compressor has a range of from 20 to 50 hp. on "F-12" and from 30 to 50 hp. on "F-22."

—KEY NO. F-12312—
NEWLY INTRODUCED 'Banox' to prevent rust and control corrosion is explained by John Crane, chief engineer for Calgon, Inc. (r.) to Douglas Stark, while Hal Kivlan, Calgon salesman, tells Frank Stark (l.) about the company's new maintenance instruction sticker that can be applied right to the cooling tower for the owner's information.

———KEY NO. F-12313———
OPERATING CHANGE-OVER SWITCH on Laurel heat pump is Mrs. Frank O'Brian, secretary of O'Brian Associates, Miami wholesaler. Made by the Laurel Mfg. Co. of Laurel, Miss., the reverse cycle unit has 3-ton cooling capacity and 25,000 B.t.u. heating capacity.

—KEY NO. F-12314—
NEW MITCHELL AIR HANDLING unit for 2, 3, and 5-ton applications is shown by Harold Kreegel, Florida district manager for Mitchell Mfg. Co. to Ralph Lampie, Richmond, Va. contractor.

—KEY NO. F-12315—
NEW 3-TON HIGH SIDE with evaporator blower section was shown to contractors by Aug. G. Barkow Co. William J. Wawrzonek, sales manager for Barkow (l.) has an attentive audience in Ken Tyler (c.) and F. L. Davison of Davison Associates, Toledo, Ohio.



Electrical Control Box of a Brunner ¼ hp. compressor

Klixon Protector

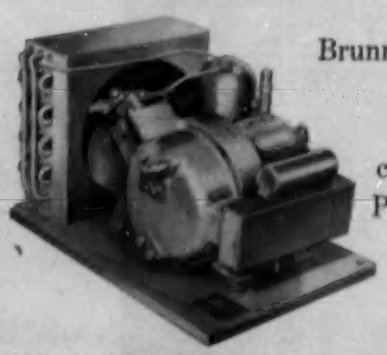
Klixon Motor Starting Relay

Brunner Specifies and Uses

KLIXON

Protectors and Starting Relays

To Assure Dependable Service



A Brunner Air Cooled Condensing Unit

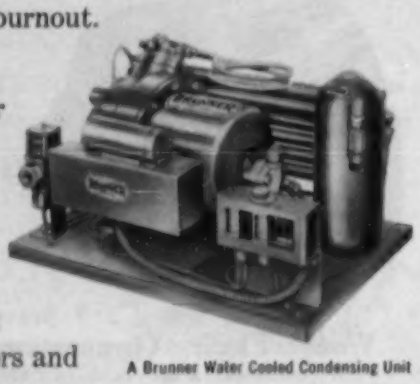
Brunner Manufacturing Company, leading manufacturer of commercial refrigeration condensing units, uses Klixon Protectors and motor starting relays to help assure their customers of service-free dependability.

Here's what Brunner has to say:

"We specify Klixon motor protectors for use on all Brunnermetic single-phase compressors because of their dependability and service-free operation. The protectors permit efficient motor loading with maximum protection against motor burnout.

"We have also found the Klixon current type motor starting relay to be equally dependable."

You, too, can help build and maintain top product performance by specifying and using Klixon Protectors and motor starting relays.



A Brunner Water Cooled Condensing Unit

METALS & CONTROLS CORPORATION
SPENCER THERMOSTAT DIVISION
2412 Forest Street, Attleboro, Massachusetts

KLIXON ®

Edwards

CO-AXIAL CONDENSERS

A TYPICAL CONFIGURATION—
EFFICIENT, COMPACT DESIGN

The NEWEST design in water-cooled refrigerant condensers. Used by major equipment manufacturers because of these—

SELLING ADVANTAGES:

- Use 35% less water
- Cost reduced 30 to 40%
- Stock sizes: ½ to 7½ tons
- No internal joints
- Easy installation
- Many compact shapes

Send for catalog
TT-652
TODAY
or call
TERHUNE 5-2808

EDWARDS ENGINEERING CORP.
100 ALEXANDER AVENUE • POMPTON PLAINS, NEW JERSEY

MARSH
Instruments

THE SERVICEMAN LINE of Testing Gauges, Testing Thermometers, Timers, etc.
PRESSURE GAUGES and Dial Thermometers for all services.
MARSH-ELECTRIMATIC, Water Regulating Valves, Solenoid Valves.

MARSH INSTRUMENT COMPANY
Sales Affiliate of Jas. P. Marsh Corporation
Dept. D., Skokie, Ill.

For more information about products advertised on this page use Information Center, page 20.

Kelvinator Refrigerator Line--

(Concluded from Page 1)

long way towards solving the homemaker's problems of how and where to store such bulky foods as turkeys, hams, watermelons, party dishes, and large bottles. The tilt-out door crisper is convenient for both loading and unloading. The twin Handichests will hold many packaged dairy products," he said.

A light over-all interior color complimented by bright aluminum shelves and dark, contrasting trim provide an entirely new interior color styling for 1957 Kelvinator refrigerators.

Two new exterior colors have been added: Autumn rose and village green.

"All models feature a new safety door latch, which provides a positive door seal with new air cushion gasket of soft vinyl, yet the door may be opened from inside at a touch."

The Foodarama combines an upright freezer of 5-cu. ft. capacity (75 lbs.) side-by-side with an 11-cu. ft. fresh food storage refrigerator, and requires less than 48 in. of floor space. In addition, it includes a special utility bin in the door of the freezer for storing freezer wrap and other freezer containers, or dry storage.

'Tilt-Out' Door Crisper May Be Removed

The new, tilt-out door crisper may be removed for loading at counter top or for cleaning at the sink. It holds 15 qts. of fruits and vegetables which can be seen through the window.

Above the crisper are twin Handi-chests for storing butter, packaged cheese, or other small packaged items. A shelf holds bottles and jars. At the top of the door is the special "breakfast bar."

The fresh food cabinet has five shelves plus the new super shelf at the bottom. Middle shelf slides out. Attached to the bottom of the second shelf is a special slide-out drawer, or "handitray" for storing lunch meats and other items.

Humidiplate Provides 'Moist-Cold' Foodkeeping

A new "U-type" humidiplate, extending around three sides of the top fresh food section, provides moist-cold foodkeeping and automatic defrosting.

The freezer door contains two shelves near the top for storing ice cream in sizes up to ½-gal. packages and other frozen foods. Below are three dispenser racks for storing cans of frozen soups, and juices.

The freezer cabinet has seven shelf areas, including a special pastry shelf. There are six cube trays on the top shelves. Three trays make 38 "ice-slices" each, the other three make 24 cubes.

Describing 31-in. models, the company said a two-door refrigerator-freezer, model K69G-13, has a separately insulated and refrigerated freezer. Three ice trays and juice tray are stored in a removable ice tray rack.

Fresh food section holds 10.7 cu. ft., and automatically defrosts. It has Handitray under top shelf, and twin crispers.

Door has removable egg racks that hold a dozen eggs. Other door storage includes twin Handi-chests, and deep shelf.

Model K68G-12 has a 102-lb. frozen food chest at the bottom and a tilt-out door crisper at waist-level. Four shelf areas in the cabinet, including a new large shelf for bulky items, provide fresh food storage.

The freezer is separately insulated and refrigerated. Fast-freezing shelf holds trays for canned frozen fruits and juices plus three ice cube trays. Roll-out storage basket holds packaged frozen foods.

The humidiplate of this model defrosts automatically.

Model K67G-13, an automatic defrosting refrigerator - freezer with 13.2-cu. ft. capacity, contains many Foodarama features, including the tilt-out door crisper, super shelf, and twin Handichests. The Handi-tray slides out from the bottom of the top cabinet shelf.

COMBINATION "Foodarama" upright home freezer and "moist-cold" refrigerator of Kelvinator's 1957 line provides 16 cu. ft. of food storage in cabinet less than 48 in. wide. The 5-cu. ft. freezer holds 175 lbs. of frozen food.

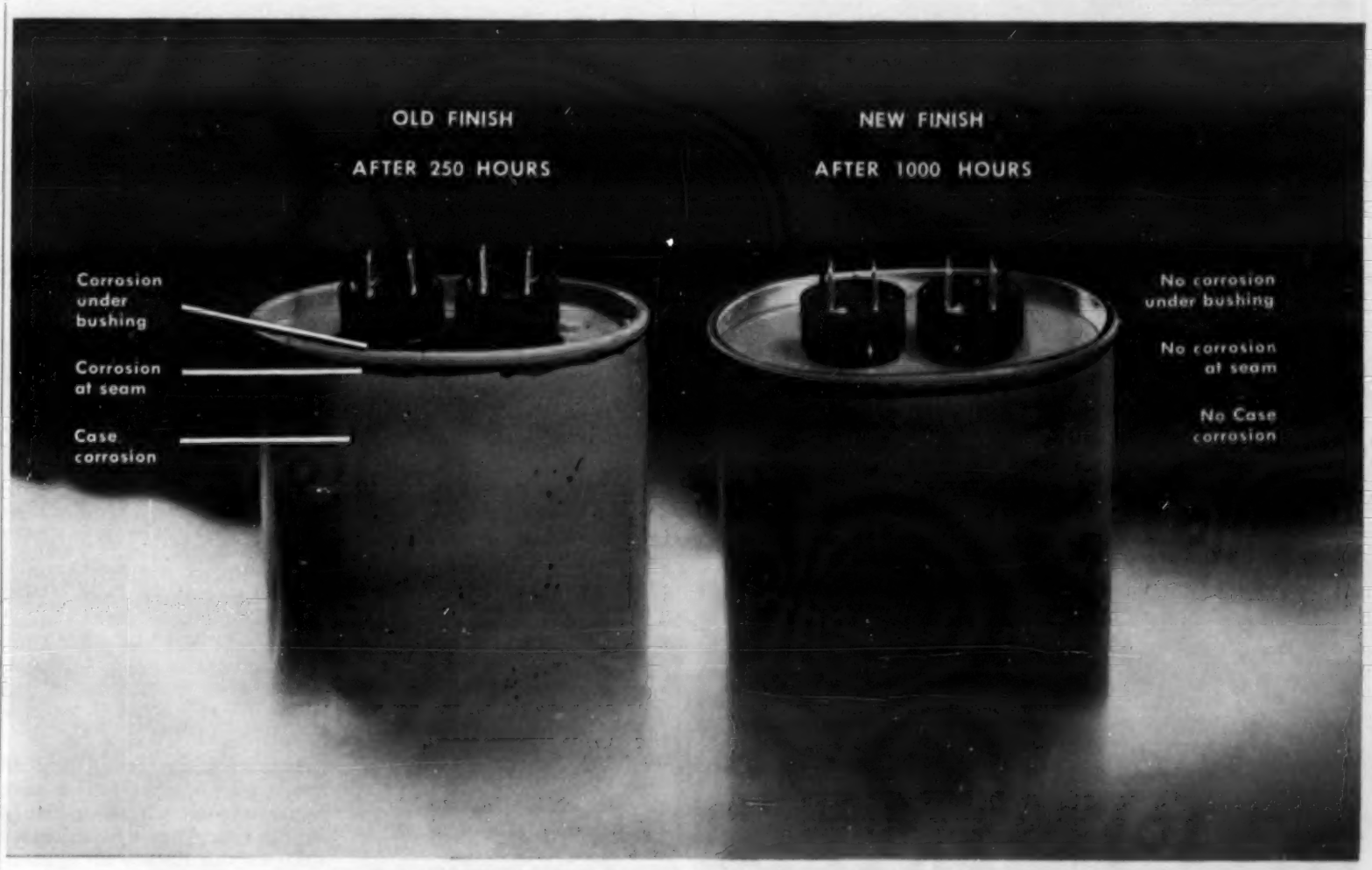
The 68-lb. freezer is separately insulated and refrigerated. It contains three 24-cube ice trays and ice tray rack.

Model K65G-14 is the largest 1957 Kelvinator refrigerator-freezer with the exception of the Foodarama. The 13.6-cu. ft. model holds 68 lbs. of frozen and 11.7 cu. ft. of fresh food.

Also in the line are two 28-in. models—K45G-11, a deluxe pushbutton defrosting refrigerator, and K43G-11, both with 10.8-cu. ft. capacity—and two 24-in. models—K26G-8, a pushbutton automatic defrosting refrigerator, and K22G-8, both with 8.2-cu. ft. capacity.

Model	Cu. Ft. Capacity	Suggested Retail Price
Foodarama	16.0	$699.95
K69G-13	13.1	449.95
K68G-12	11.8	499.95
K67G-13	13.2	439.95
K65G-14	13.6	369.95
K45G-11	10.9	279.95
K43G-11	10.8	249.95
K26G-8	8.2	249.95
K22G-8	8.2	209.95

All models available in color at extra cost. Foodarama—$20 extra. All other models—$15 extra.



20% salt fog corrosion test at 95 degrees Fahrenheit proves new G-E capacitor finish more than four times more corrosion-resistant than old finish.

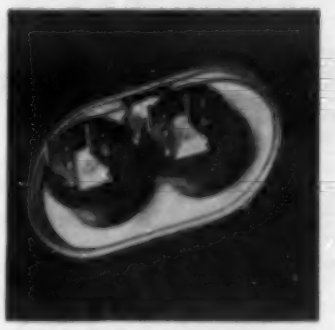
New finish gives General Electric capacitors 4 times greater protection against corrosion

General Electric is proud to announce a new finish for its air conditioning capacitors that virtually eliminates corrosion. A combination of cadmium-plated covers and new Granite-Gray paint gives the General Electric capacitor more than four times the corrosion resistance of any previously-used finish.

New, Granite-Gray paint has been life-tested in a 20 percent salt fog atmosphere for 1000 hours at 95 degrees Fahrenheit with absolutely no indication of corrosion. This remarkable, new case paint gives longer life to your General Electric air conditioning capacitors, even under the most adverse climatic conditions.

Cadmium-plated covers provide maximum corrosion protection for normally inaccessible areas—under the bushings and at the double rolled seams. The tough cadmium coating seals off these "trouble spots" from the harmful effects of corrosive atmospheres.

The new corrosion-resistant finish is now available on General Electric's full line of capacitors for air conditioners. For more information about General Electric's air conditioning capacitors with the new corrosion-resistant finish, contact your nearest G-E Apparatus Sales Office. Or write for bulletin GEA-5895, "Capacitors for Air Conditioning Equipment." General Electric Company, Section 448-1, Schenectady 5, N. Y.



Cadmium-plated covers provide extra protection under bushings and at double rolled seams.

Progress Is Our Most Important Product

GENERAL ELECTRIC

Electrical Characteristics of Packaged Air Conditioning Units (2)

Air Conditioner Starting, Running Current, Step Starters Discussed

By P. W. Wyckoff, Chief Engineer, Airtemp Div., Chrysler Corp., Dayton

The discussion by P. W. Wyckoff which is being published in three successive issues of the NEWS, was presented before a meeting of the Transmission and Distribution Committee of the Edison Electric Institute.

The discussion is much more than an outline of the "electrical side" of air conditioning units in its relationship to electric power facilities. Rather it is the most comprehensive—and thoroughly up-to-date discussion of the electrical characteristics of unitary air conditioners that has come to our attention. It has much that should be of prime interest to manufacturers and contractors.

This second part begins the results of studies on air conditioner starting and running current, with performance curves, a discussion for step starters, and recommendations for both manufacturers and utility companies.

AIR CONDITIONER STARTING AND RUNNING CURRENT

Fig. 9 shows a typical compressor motor performance curve. As previously pointed out, temperature rise is no problem in our compressor motors since they are cooled by refrigerant gas. It is therefore typical that the motor is loaded, as shown, very close to the breakdown point when the unit is running under the maximum load condition.

We no longer use horsepower as a measure of motor performance since with refrigerant cooling, it is desirable to load the motors as much as possible. This is of particular interest to the utilities since it decreases the ratio of starting current to running current.

Most of our compressor protector devices protect against a locked rotor condition or loss of refrigerant gas. They are not regarded as running current protection as in the case of open type standard motors.

The horsepower required to drive the compressor when the system is operating under the ARI high load condition is a function of the cooling capacity

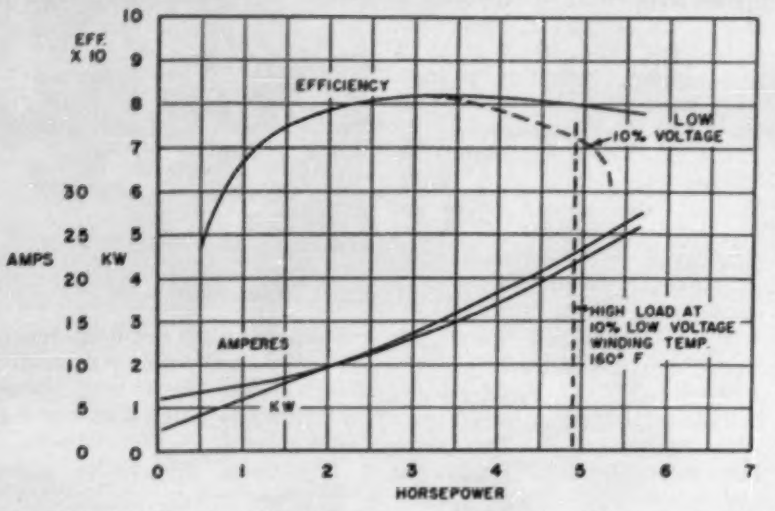


FIG. 9—Typical 3-hp. hermetic compressor motor single phase 230-v. capacitor-start run performance curve.

* * *

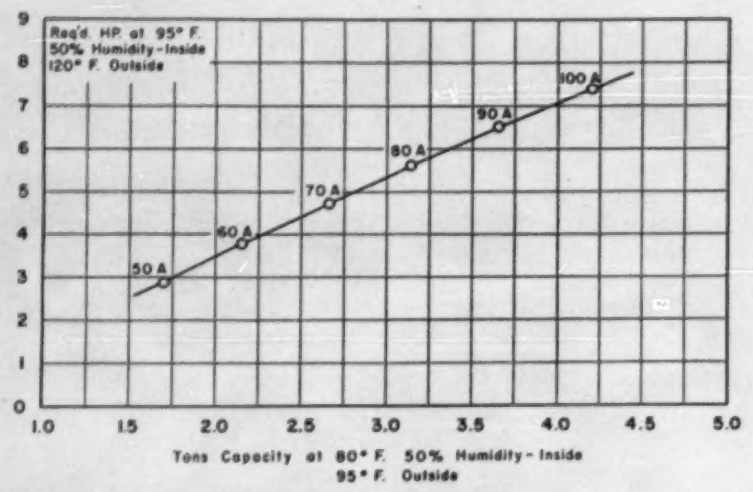

Req'd. HP at 95° F. 50% Humidity - Inside 120° F. Outside
50 A
60 A
70 A
80 A
90 A
100 A
Tons Capacity at 80° F. 50% Humidity - Inside 95° F. Outside

FIG. 10—Horsepower needed to drive the compressor when system is operating under ARI high load condition is function of cooling capacity at ASRE cooling rating condition.

of the system at the ASRE cooling rating condition as shown in Fig. 10. While there is some variation between manufacturers, this curve will be found to be very representative of present practice in our industry and we see very little chance of any substantial changes in compressor and system efficiencies.

Spotted on this curve are the points representing various locked rotor currents for a single phase motor. These are taken from Fig. 11. Note that for a given cooling capacity to be supplied by the equipment, a definite starting current will be required in a single-phase residential air conditioner.

To get the information shown in Fig. 11 we asked five major motor vendors to supply us with a curve showing the minimum possible starting current for a given maximum horsepower to be supplied by the single-phase motor.

They were to assume the best possible motor design techniques either in use now or in the foreseeable future. They were also to assume that the compressor was completely unloaded at the starting and required practically no starting torque to get it under way.

Since in a single-phase motor of this type 90% of the starting current is in the main windings, starting current is actually primarily a function of the maximum horsepower of the motor.

It is very interesting that all five motor vendors fell in such a narrow pattern as indicated in Fig. 11. This is the reason that we can foresee no appreciable change in air conditioner starting currents in the near future.

Fig. 12 shows a curve similar to Fig. 11 except that this curve is for three-phase starting currents. In this case, the starting current is somewhat more dependent upon the starting torque required as well as on the breakdown torque or maximum torque of the motor. There is a wider range of starting currents among the major motor vendors although the pattern is still relatively narrow.

In the free competitive American economy it is necessary for each air conditioning manufacturer to be able to produce products having cooling capacities which he feels will give the customer the best value and allow him to increase his business. Depending on the compressor used and type of design available to him, each manufacturer has different ideas on the proper cooling capacity.

Shown below are the cooling capacities in tons of various standard air conditioners now being produced by seven manufacturers:

1.73	2.75	3.25	4.85	7.5
1.85	2.76	4.2	5.0	8.67
1.96	2.79	4.45	5.26	
2.0	2.93	4.5	6.6	
2.61	3.0	4.51	6.85	

It will be noted that these vary by rather small increments. This is the reason that various companies must use various starting current values, and standardization on the basis of some fictitious horsepower nomenclature will only confuse the whole picture.

The real question is, does each manufacturer employ a starting current reasonably close to the minimum that he can obtain considering the running current of his unit?

Fig. 13 shows a very interesting plot representing the ASRE currents of the units produced by 11 major air conditioning manufacturers plotted against the individual locked rotor currents. These are single-phase air-cooled products and show the compressor currents alone.

(Continued on next page)

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Current--

(Continued from preceding page)

It is interesting that in spite of the hundreds of variables involved in the design of a system and in spite of the fact that each manufacturer is using his own test facilities without outside policing that this information falls in a remarkably consistent pattern.

Obviously, there are a few manufacturers who have really poor units from the standpoint of locked rotor current. It is also obvious that it would be almost impossible to select a ratio of locked rotor current to ASRE current which did not either include most of the industry or else exclude most of the industry.

EEI Q-8 single-phase rules published in 1948 are obviously out of date since they refer only to NEMA open motor standard practice. The joint EEI-NEMA-ARI Committee is considering bringing these rules up to date. We feel that the information in Fig. 13 will be of great help in this direction.

Fig. 14 shows the same information except that nameplate current is used in place of ASRE current. The artificial nature of the procedure used to determine nameplate current shows up immediately in a much wider scattering of points. This is the reason that information given directly to utilities by local air conditioning distributors has often been quite misleading.

Similar information to that given previously is shown for the three-phase water-cooled units on Fig. 15. Here again, the ASRE currents fall in a reasonably consistent pattern although not as uniform a pattern as the air-cooled units.

It is common practice to use the same compressor in both air and water-cooled products. This means a lower loading for compressors in water-cooled installations, even though the locked rotor current remains the same.

Again, when the water-cooled three-phase information is plotted on the basis of nameplate current as in Fig. 16, the points are very widely scattered. The limits of the EEI 55-8 polyphase starting current rules recently issued by EEI in August 1955 specify a ratio of locked current to nameplate current not to exceed about 3.9 unless a step starter is used.

It will be noted that these rules eliminate every major air conditioning manufacturer in the country. Although they appear to give limits on starting current, they are in effect simply a mandate to add step starters to every three-phase air conditioner.

To date, they have developed comparatively little compliance in our industry because there are apparently few combined light and power secondary systems and the rules are not being enforced.

(To Be Continued)

(To Be Reprinted)

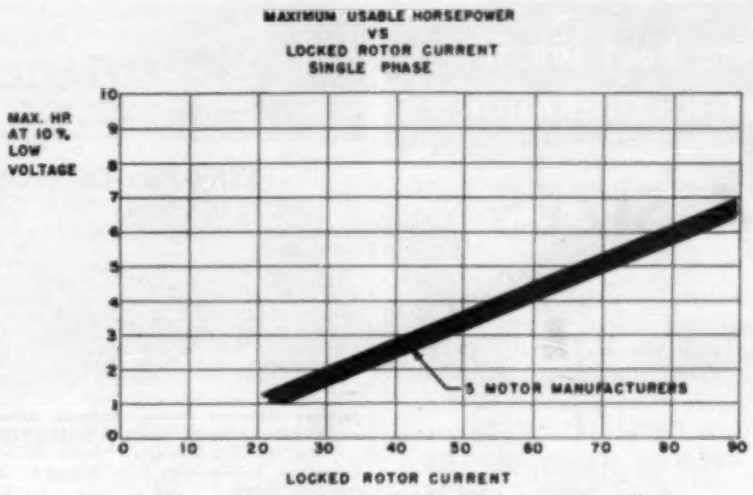

FIG. 11—Five motor manufacturers' units fall into narrow pattern.

* * *

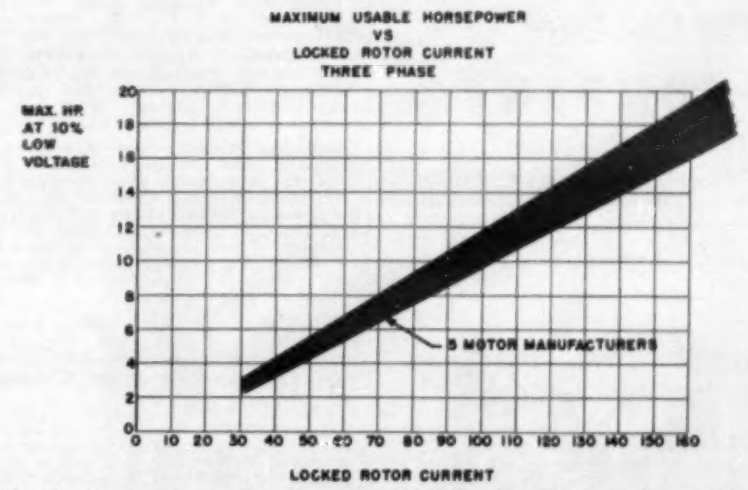

FIG. 12—Curve similar to Fig. 11 except this is for three-phase starting currents.

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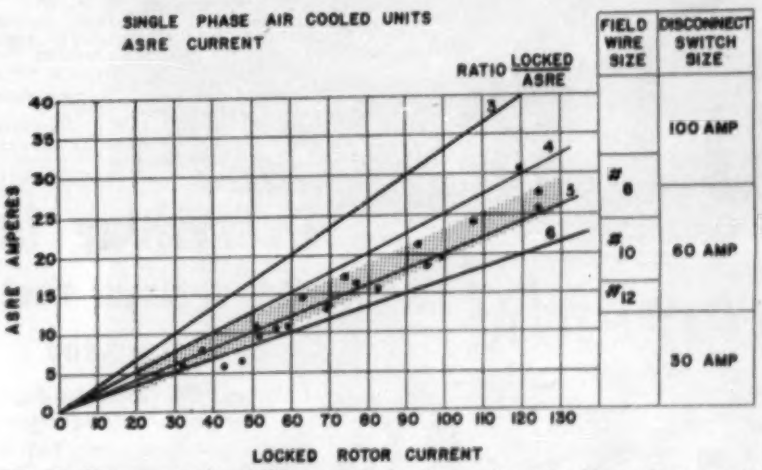

FIG. 13—Plot representing ASRE currents of units produced by 11 major air conditioning manufacturers plotted against individual locked rotor currents.

* * *

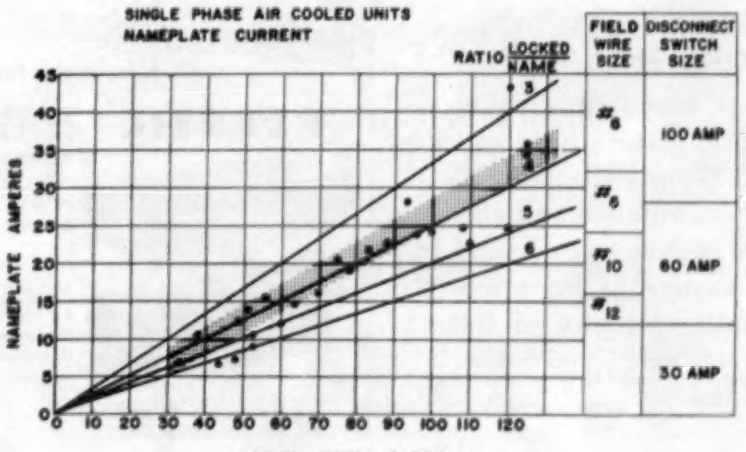

FIG. 14—Same information as Fig. 13 except that nameplate current is used instead of ASRE current.

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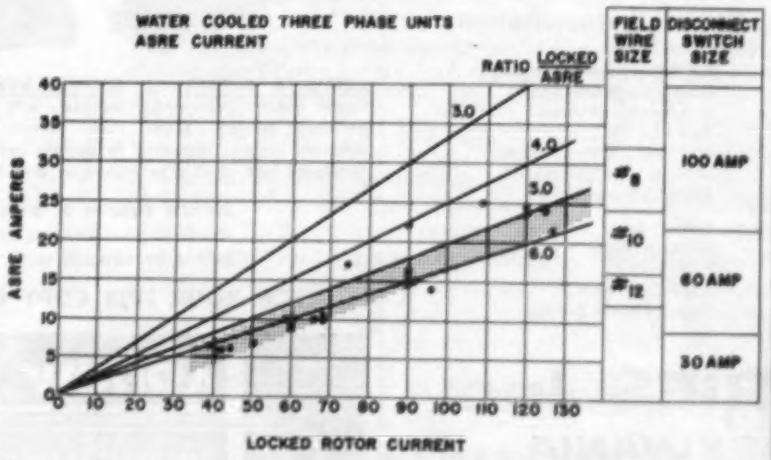

FIG. 15—Similar information to that of Figs. 13 and 14 is shown for three-phase water-cooled units.

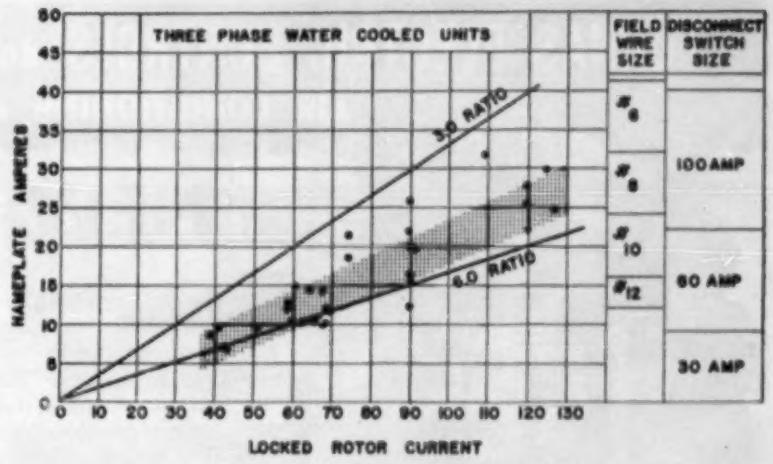

FIG. 16—Water-cooled three-phase information plotted on the basis of nameplate current shows points widely scattered.

Allis-Chalmers Shifts Cline to Pittsburgh

MILWAUKEE — R. H. Cline, formerly manager of Allis-Chalmers' Charlotte district, has been appointed manager of the Pittsburgh district of the company's Industries Group.

He succeeds J. K. Keogh, who continues as a special representative reporting to V. L. Spinney, manager of the central region.

Cline is succeeded as Charlotte district manager by C. B. Rumble, Jr.

Webber Moves Plant

INDIANAPOLIS — Webber Engineering Corp., manufacturer of low temperature environmental facilities, recently moved to a new location at 24 S. Keystone Ave. here.

CASE HISTORY

Another Space-Saving Application of Heat-X 'PC' Package Chillers.

National Zoological Park
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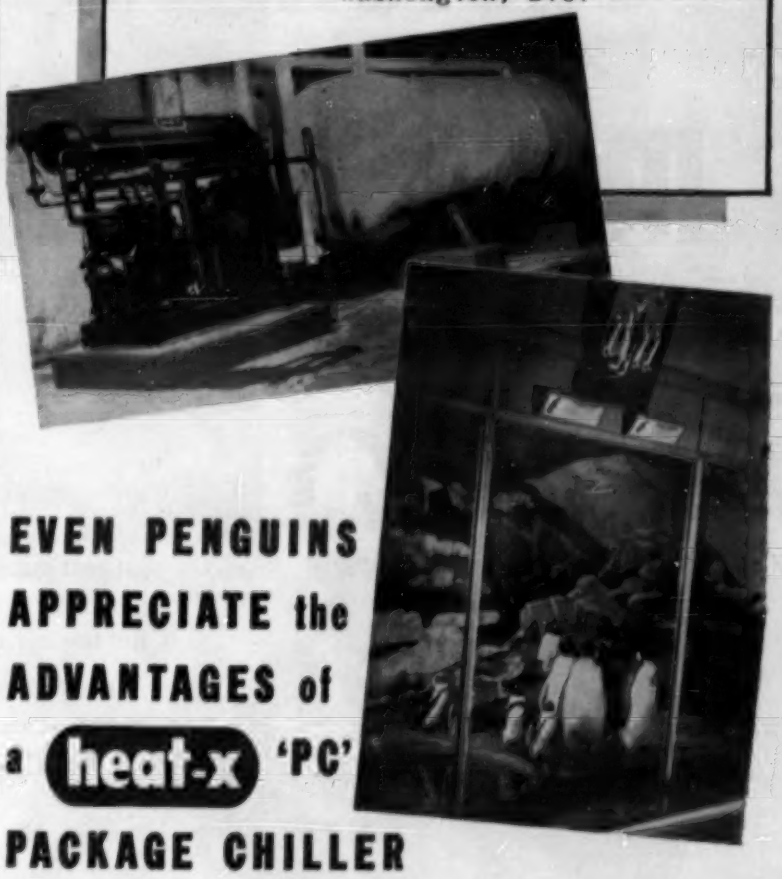

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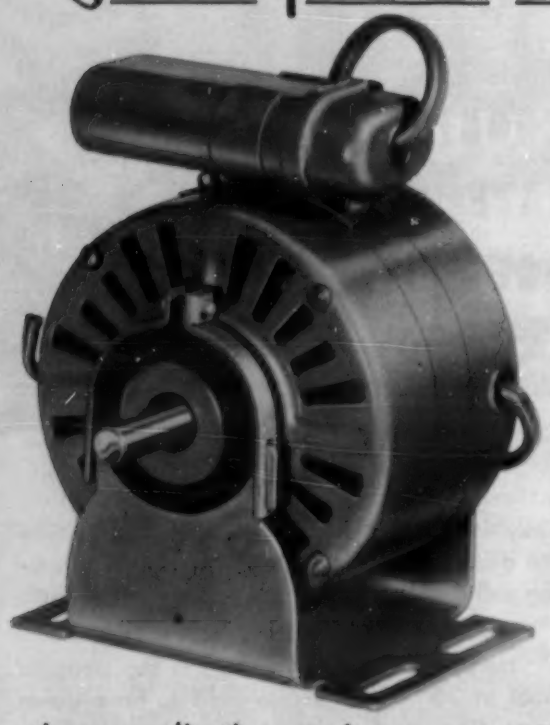

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This record is based on quality construction and versatility as well as quantity. For quiet operation, trouble-free performance and efficiency, Marco Motors have proved their right to leadership. For prices and full details call any of the Application Engineers listed below, or write to us today.

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Rochester 2, N. Y.
Phone: BRowning 2143

Cleveland Area
Commercial Electric Co.
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Cleveland 14, Ohio
Phone: CHerry 1-2886

Texas-Oklahoma Area
Allied Components, Inc.
Petroleum Services Building
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Dallas 19, Tex.
Phone: LAkeside 8-4943

Chicago Area
Spartan Engineering Co.
119 S. Jefferson St.
Chicago 6, Ill.
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St. Louis-Memphis-Little Rock-S. Illinois Area
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Phone: CEntral 1-1677

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Government Contracts

SYNOPSIS OF PROPOSED PROCUREMENT

ARMY

Omaha Dist., Corps of Engineers, 1709 Jackson St., Omaha 2, Neb., Attn.: Const. Div.
CENTRAL HEATING PLANT ADDITION, Minot ARB, Minot, North Dakota. The work will include: (a) A 52 ft. x 21 ft. extension to an existing heating plant: steel frame, corr asb. cement siding, concrete foundation. (b) High temperature hot water generating equipment; two 25,000,000 B.t.u./hr. boilers, three boiler circulating pumps, steam converter: two variable speed distribution system pumps; feed water treatment equipment and associated accessories—Job—IFB Eng-25-066-57-32—Bid Opening 10 Jan. 57 (Minot, North Dakota)—Drawings, specs., and bid forms will be furnished by above office, no deposit required.

Auburn General Depot, Auburn, Wash.
FURNISH SNACK BAR FACILITIES in accordance with Specifications and Drawings No. 272-A—14 items—IFB QM 45-149-57-24—Bid Opening 13 Dec. 56.

Corps of Engineers, New England Division, U. S. Army, 150 Causeway St., Boston, Mass.
CONSTRUCT ADDITION TO CENTRAL HIGH PRESSURE HOT WATER HEATING PLANT AND HEAT DISTRIBUTION SYSTEMS, Westover Air Force Base, Chicopee Falls, Mass.—Job—IFB-ENG-19-016-57-104B—Tentative Bid Opening 4 Jan. 57. Plans and specifications available approximately 4 Dec. 56. Deposit required, $15.

QM Purchasing Agency, Columbus General Depot, Columbus 15, Ohio.
DISPENSER, DRINKING WATER, 4 line items Fed. Spec. 00-C-566C—various quantities—IFB 57-285B—Bid Opening 21 Dec. 56.
An additional quantity of dispensers is being reserved for Small Business under a partial Joint Determination.

Purchasing Branch, Fort Monroe, Va.
INSTALL AIR CONDITIONING in Buildings 116, 161, and 163 at Fort Monroe, Va. in accordance with Specifications, Schedules, and Drawings—Job—IFB 44-036-57-20B—Bid Opening 27 Dec. 56.

Galveston District, Corps of Engineers, P.O. Box 1229, Galveston, Texas.
AIR CONDITIONING SYSTEM for Building No. 1000, Brooke Army Medical Center, Texas consisting of providing air conditioning for major part of existing main hospital building including construction of equipment room and cooling tower—Job—IFB ENG-41-243-57-16B—Bid Opening 28 Jan. 57.

NAVY

Yards and Docks Supply Office, Port Hueneme, Calif. Attention Purchase Div.
FROZEN FOOD CABINET, Domestic and Household Refrigerator, Specifications available—4 Items—IFB-160-214-57B—Bid Opening 21 Dec. 56.

Navy Purchasing Office, 4th & Independence Ave., Washington, D. C. Attn.: SPF-1A.
COILS, GRAVITY, COOLING, CHILLED WATER COOLING Type A, sizes 1G, 45DW, 46DW, 45DF, and 46DF per Spec. MIL-A-2939 (Ships) dated 27 Aug. 1953 and Amend. 4 dated 3 Jan. 56 as modified in invitation. The material under this specification is of a type on the Qualified Products List—Total qty. 47 ea.—IFB 600-643-57-S—Bid Opening 19 Dec. 56.

GENERAL SERVICES ADMINISTRATION

General Services Administration, Region 3, Business Service Center, 7th and D Sts., S.W., Washington 25, D. C.
GASES, Industrial, Medicinal, and refrigeration—Term Contract for Period 3-15-57 thru 3-14-58, Indefinite quantity—IFB FN Federal Supply Schedule Class 51, Part III—Bid Opening 12-18-'56.

NOTICE TO SMALL FIRMS

Headquarters, Oklahoma City Air Materiel Area, Tinker Air Force Base, Okla., Attn.: Procurement Div., OCPSC.
INSTALLATION OF AIR CONDITIONING in Building No. S-206—Job—IFB 34-601-57-232 B—Bid Opening 28 Dec. 56.

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Contains the latest in door gaskets for every refrigeration application. You'll want to keep this complete guide handy constantly.

Here are a few of its featured products:

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JARENE-B . . . the ideal, tough, flexible vinyl plastic extruded material that can't crack, check or oxidize—highly grease resistant—long wearing—easily cleaned—any shape to exact specifications. Present applications include refrigerator, freezer, display case gaskets, beverage tubing.

V-1212 . . . same tough, flexible vinyl outer jacket as JARENE-B over resilient sponge rubber. Used on refrigerated display cases—weather-exposed freezer doors—refrigerated truck bodies—refrigerated and non-refrigerated railroad cars and others.

RUBBER

EXTRUDED RUBBER . . . finest quality for long, efficient service. Many different cross sections available from stock dies.

SPONGE RUBBER . . . molded with Neoprene outer jacket. Available in double cushion, single cushion and flat strips.

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Amana Line--

(Concluded from Page 1, Col. 3)

tors, and its built-in freezers and refrigerators.

Amana's six "Year 'Round" models in ¾, 1, 1½, and 2-hp. sizes, priced from $359.50 to $479.50, all are designed for flush-mounting and adjustable installation. They are equipped with a single glider control that selects any one of six different combinations of cooling, heating, dehumidification, and ventilation; and with the replaceable decorator fabric panel concealing the control panel.

The attractive beige-brown-gold tweedy material blends with a broad variety of decors, it was explained, but it can be replaced easily with another fabric if desired, to match or contrast with other elements in a room. The fabric is coated with an invisible plastic which makes possible cleaning with a damp cloth.

"All units are compactly constructed, so that even the new 2-hp. size fits into the same size outer case as the 1½-hp. model (25 in. wide, 15 in. high, and less than 32 in. deep)," the company noted. "The Year 'Round units may be flush-mounted without extending past the window sill."

Amana's "Slim-Lo" line, in ¾ and 1-hp. sizes, 17 in. high, can be mounted in-the-wall, in casement windows, and in five different positions in double-hung windows so that the window can be closed either behind or in front of the unit.

These new "wall-thin" models also have a textured look, with a woven decorator panel across the front of the unit. Not replaceable, this fabric serves on the right as an entrance for air returning to the unit, and on the left as a cover for a door concealing the control panel.

Amana's Slim-Lo has five control settings—exhaust, hi cool, nite cool, cool, and vent. A thermostat control offers a choice of seven cool to cold settings.

"Both Year 'Round and Slim-Lo models are equipped with two-speed fans for extra-quiet night-time operation; 10-20% more efficient Jet Flow cooling system; drip-free moisture removal; activated charcoal filter which traps odors in addition to dirt, dust, and airborne pollen; and vibrationless design," the company said.

The three budget-priced "Deluxe" models come in ½, ¾, and 1-hp. sizes, priced at $269.50 to $329.50, and equipped with single dial thermostat control. They are designed to provide full capacity air conditioning, including cooling, dehumidifying, filtering, and ventilation, at low cost, it was explained.

The 1-hp. 115-volt models in Deluxe and Year 'Round lines, to be available in 1957 for the first time, are expected to constitute a substantial part of Amana's air conditioner business next year.

Model numbers and prices on the room air conditioners are in accompanying table.

Amana's central-system packaged, self-contained, air-cooled air conditioners come in 2 and 3½-hp. sizes. They can be installed economically and simply, "even by a skilled do-it-yourself craftsman," it was stated, because they require no remote refrigerant lines, water pipe connections, or remote condensers, and because they can be installed with prefabricated glass fiber ducts.

'Wall-Thin' room air conditioner.

Model No.	Hp. Rating	Voltage	Price
SLIM-LO			
75-LF2*	¾	115	†
100-F3	1	230	†
YEAR 'ROUND			
75-LA2*	¾	115	$359.50
75-A2	¾	115	359.50
100-A2	1	115	379.50
100-A3	1	230	389.50
150-A3	1½	230	449.50
200-A3	2	230	479.50
DELUXE			
50-LD2*	½	115	269.50
75-LD2*	¾	115	299.50
100-D2	1	115	329.50

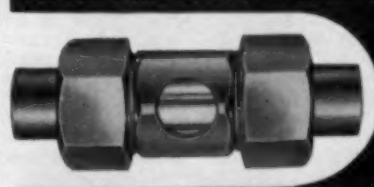
*7.5 Amp. †Not established.

Deepfreeze chest freezer.

Amana's first Deepfreeze models, DF90 (9.3-cu. ft. capacity), DF160 (15.7 cu. ft.), and DF220 (22.1 cu. ft.) have been designed to provide "most efficient frozen bulk storage, with greater capacity, better performance, lower operating cost, and longer life than former Deepfreeze models."

Amana's restyled upright freezers (models 12, 15, 19, and 25 W), freezer-plus-refrigerators (FPR-14 and FPR-18) and built-ins (BIR and BIF) contain many design changes and alterations.

NEW unit SAVES TIME on the PRODUCTION LINE



"250" SERIES
LIQUID EYE® POSITIVE SEALING INDICATORS

6 sizes now available: ⅜", ½", ⅝", ⅞", 1⅛" and 1⅜" O.D.S

designed to save you even more time and money.

The new "250" has all the proved Liquid Eye advantages *plus* these newly engineered features:

- A completely, self-contained economy unit that's ready for immediate installation.
- smaller — more compact, simplified.
- designed to eliminate possible assembly errors.
- preformed copper extension eliminates need for separate gaskets — *foolproof* installation.

If you have a special problem, consult with Allin engineers. Custom units can be made to your exact specifications.

Write today for catalog covering the complete Allin line.

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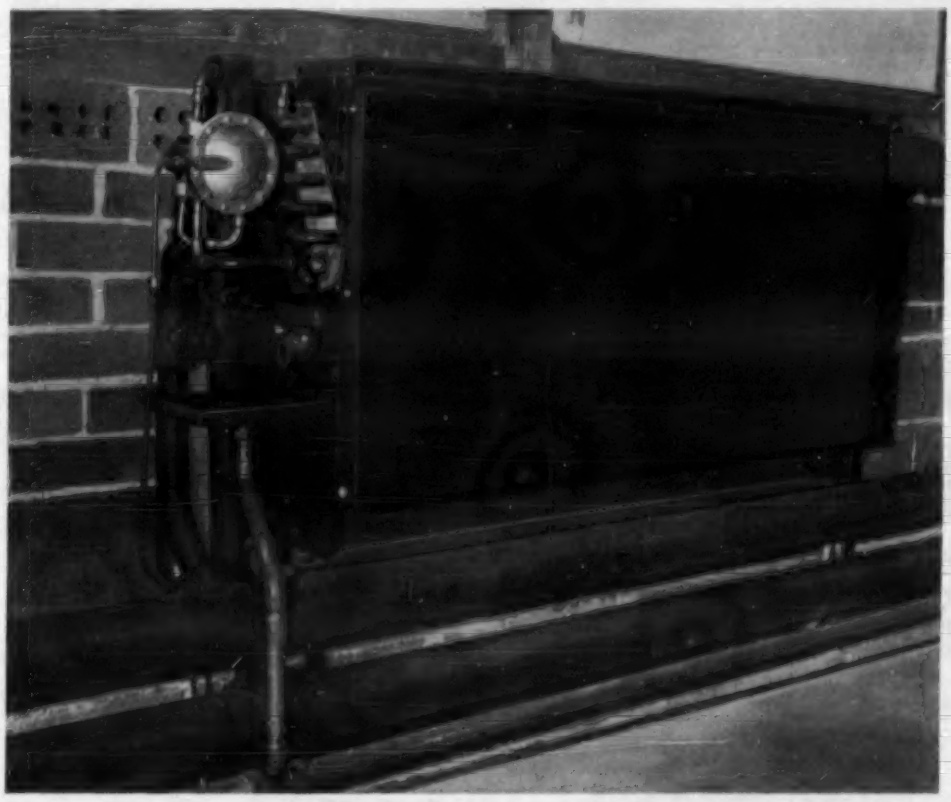
Over 1,000,000 Liquid Eyes Sold to Date!



Condensation is prevented by Armaflex's closed cell structure and high insulation efficiency. Armaflex has a conductivity of 0.28 Btu./sq. ft./in. thickness/hr./degree F. temp. difference at 75° mean temperature. This installation is in new office building of Aircraft Marine Products, Inc., Harrisburg, Pa.

New insulation for liquid cooling lines

stops dangerous condensation

Now you can stop condensation for good on liquid cooling, chilled water, and other cold lines. Armstrong Armaflex*, a flexible new pipe insulation, completely seals out moisture and air. Armaflex is made of foamed plastic, with a closed cellular composition that provides an exceptionally efficient vapor barrier. In ½" thickness, Armaflex prevents condensation under normal design conditions on indoor lines operating as low as 32° F. Insulating efficiency always stays high because Armaflex stays dry.

Flexible enough to tie in knots, Armaflex can cut application costs by as much as 50% when compared with wrap-on or rigid type pipe coverings. It fits easily over pipe or tubing, follows contours without cutting or fitting. If lines are already in operation, Armaflex can be slit lengthwise, snapped into place, and sealed with Armstrong 520 Adhesive.

Armaflex is clean to work with, too. It is soft, odorless, and will not rub off, crumble or chip. There's practically no waste. Self-extinguishing, Armaflex can be safely installed before sweat fittings are made.

Armaflex comes in 6' lengths, for pipes and tubing to 3⅛" o.d. It can be used on lines operating to 200° F.

For the free booklet, "Armstrong Armaflex, a Flexible Pipe Insulation," write Armstrong Cork Company, 2012 Parsons Street, Lancaster, Pennsylvania.

Armstrong
INDUSTRIAL INSULATIONS

*TRADE-MARK

Fast, easy to apply, Armaflex can be slipped right over tubing or piping as it's being installed. A talc coating inside covering speeds application.

Rapid fabrication of fitting covers is accomplished by miter-cutting Armaflex. Then slit, snap into place, and cement with Armstrong 520 Adhesive.

For added safety, Armaflex is self-extinguishing. It can be applied in advance to copper tubing and held back with clamps while fittings are sweated.

13 NEMA Firms Sell 297,906 Refrigerators In August

Summary for August, 1956

Complete Electric Household Refrigerators Only—Sales by Sizes—Units

AUGUST (13 Companies)

Sizes	Domestic	Canadian	Foreign	Total
1. 3 cu. ft. (3.4 & under)..	....	....	....	....
2. 4 cu. ft. (3.5 to 4.4)....	1,610	....	118	1,728
3. 5 cu. ft. (4.5 to 5.4)....	....	....	....	....
4. 6 cu. ft. (5.5 to 6.4)....	398	96	....	494
5. 7 cu. ft. (6.5 to 7.4)....	5,389	173	1,461	8,023
6. 8 cu. ft. (7.5 to 8.4)....	47,007	140	18,692	65,839
7. 9 cu. ft. (8.5 to 9.4)....	12,333	779	6,325	19,437
8. 10 cu. ft. (9.5 to 10.4)..	53,518	69	2,484	56,071
9. 11 cu. ft. (10.5 to 11.4).	34,490	1,034	3,115	38,639
10. 12 cu. ft. (11.5 to 12.4).	67,980	48	1,559	69,587
11. 13 cu. ft. (12.5 to 13.4).	17,707	32	911	18,650
12. 14 cu. ft. (13.5 & over).	19,008	122	308	19,438
13. Total	**260,440**	**2,493**	**34,973**	**297,906**
Refrigerators Having Two Exterior Doors (All Sizes Included In Above).....	**59,845**	**169**	**1,203**	**61,217**

Participating companies: Admiral Corp.; Crosley & Bendix Home Appliances Div., Avco Mfg. Corp.; Frigidaire Div., General Motors Corp.; General Electric Co.; Gibson Refrigerator Co.; Hotpoint Co., a Div. of General Electric Co.; Kelvinator Div., American Motors Corp.; Maytag Co., The (in 4-1-56); Norge Div., Borg-Warner Corp.; Philco Corp., Appliance Div.; Servel, Inc.; Westinghouse Electric Corp.; Whirlpool-Seeger Corp.

18 Nema Firms Sell 61,595 Freezers In August

Summary for August, 1956

Electric Farm and Home Freezers—Complete—Sales by Sizes—Units

Farm and home freezers complete with high and low side and cabinet, where 50% or more of the net cabinet capacity is designed for the freezing and/or storage of frozen foods.

AUGUST (18 Companies)

Sizes	Domestic	Canadian	Foreign	Total
1. 6 cu. ft. (6.4 & under)				
Chest Models	*	*	*	*
Upright Models	*	*	*	*
2. 7 & 8 cu. ft. (6.5 to 8.4)				
Chest Models	*1,984	*25	*20	*2,029
Upright Models	*123	*....	*3	*126
3. 9 & 10 cu. ft. (8.5 to 10.4)				
Chest Models	*2,082	*47	*24	*2,153
Upright Models	*	*	*	*
4. 11 & 12 cu. ft. (10.5 to 12.4)				
Chest Models	*	*	*	*
Upright Models	*5,993	*....	*79	*6,072
5. 13 & 14 cu. ft. (12.5 to 14.4)				
Chest Models	*4,146	*....	*135	*4,281
Upright Models	9,028	134	131	9,293
6. 15 cu. ft. (14.5 to 15.4)				
Chest Models	7,705	305	108	8,118
Upright Models	*	*	*	*
7. 16 & 17 cu. ft. (15.5 to 17.4)				
Chest Models	5,874	39	3	5,916
Upright Models	*3,991	*3	*2	*3,996
8. 18 & 19 cu. ft. (17.5 to 19.4)				
Chest Models	2,436	7	20	2,463
Upright Models	6,340	....	86	6,426
9. 20 & 21 cu. ft. (19.5 to 21.4)				
Chest Models	7,305	195	31	7,531
Upright Models	*	*	*	*
10. 22 cu. ft. (21.5 & over)				
Chest Models	871	....	5	876
Upright Models	*2,315	*....	*....	*2,315
Total Chest Models.....	**32,403**	**618**	**346**	**33,367**
Total Upright Models.	**27,790**	**137**	**301**	**28,228**
Total All Models	**60,193**	**755**	**647**	**61,595**

*Indicates data has been combined in other size categories.

Participating companies: Admiral Corp.; Ben-Hur Mfg. Co.; Carrier Corp.; Crosley & Bendix Home Appliances Div., Avco Mfg. Corp.; Frigidaire Div., General Motors Corp.; General Electric Co.; Gibson Refrigerator Co.; Hotpoint Co., Div. of General Electric Co.; Kelvinator Div., American Motors Corp.; Maytag Co., The; Norge Div., Borg-Warner Corp.; Philco Corp., Appliance Div.; Revco, Inc.; Sub-Zero Freezer Co., Inc.; Victor Products Corp.; Westinghouse Electric Corp.; Whirlpool-Seeger Corp.; Wilson Refrigeration, Inc.

Nema Reports 5% Boost In August Freezer Sales

NEW YORK CITY—A 5% increase in sales of home freezers during August was reported by the 18 manufacturers submitting figures to the National Electrical Manufacturers Association.

At the same time, 13 household refrigerator manufacturers reported a sales decline of 4% for the month.

August sales of freezers totaled 61,595 units, while refrigerator sales numbered 297,906. The refrigerator total was the lowest since January.

The freezer manufacturers sold 60,193 units in the United States, a gain of 7% over the same month last year. But their sales to Canada were cut by 48% and to the other foreign countries by 31% as compared with the previous August.

For the first eight months of the year, freezer sales were down 7% from the same period in 1955. Sales within the United States were off 6%, those to Canada 48%, and those to other foreign countries 30%. Total unit sales for the period numbered 470,347 units.

A sharp increase in sales to foreign countries other than Canada eased the slide in refrigerator sales for August. Sales abroad were up 142%, while domestic sales dropped 11% and sales to Canada were curtailed by 49%.

For the eight months, refrigerator sales were off by 9%. They were down 12% in the United States but up 7% to Canada and 13% to other foreign countries.

San Francisco Firm Changes It's Name

SAN FRANCISCO — Because of rapidly expanding product lines and the acquisition of other companies, Chico Air Cooler Distributors has changed its corporate name to Chico General Products Corp., effective Nov. 2, according to George R. Sommers, president.

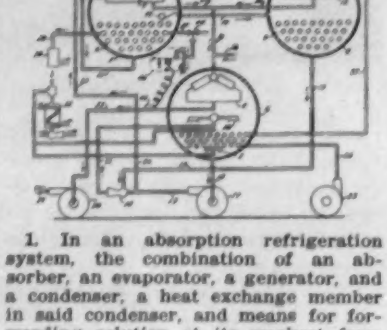
"Our management associates' group purchased the assets of the old corporation last February when it was concerned with a single product line," he noted.

"We have now taken on additional traffic appliance lines, and are continuing negotiations toward the acquisition of other companies. As a result, the new name is more indicative of our expanded activity."

PATENTS

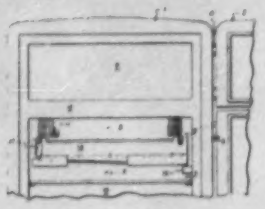
Week of July 24 (Concluded)

2,755,635. ABSORPTION REFRIGERATION SYSTEM, INCLUDING PREHEATER FOR WEAK SOLUTION. Joseph R. Bourne, Syracuse, N. Y., assignor to Carrier Corp.



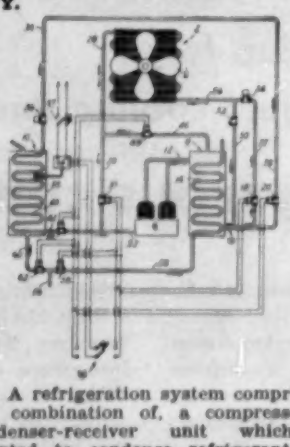
1. In an absorption refrigeration system, the combination of an absorber, an evaporator, a generator, and a condenser, a heat exchange member in said condenser, and means for forwarding solution at its weakest from the absorber to the generator and for forwarding strong solution from the generator to the absorber, said means forwarding weak solution from the absorber through said heat exchange member condensing refrigerant vapor exteriorly prior to the passage of weak solution to the generator.

2,755,636. DRAIN TROUGH FOR REFRIGERATOR. Julius B. Horvay, Louisville, Ky., assignor to General Electric Co.



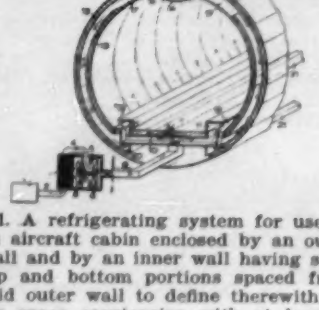
1. In a refrigerator having an inner liner forming a food storage compartment including several walls, an evaporator disposed in the upper portion of said compartment and inclined toward one of said walls, an opening in said one wall, a drain trough disposed on said one wall below said evaporator and adjacent thereto whereby defrost moisture is collected from said evaporator, said drain trough having a low thermal mass and high thermal diffusivity whereby the temperature of said drain trough is maintained above the freezing temperature of water when said drain trough is collecting defrost moisture from said evaporator, a portion of said drain trough disposed in heat exchange relation with said one wall, another portion of said drain trough being disposed in said opening, and means to connect the defrost moisture from said drain trough to outside said food storage compartment.

2,755,637. REFRIGERATION SYSTEM. Fred J. Schordine, Patchogue, N. Y.



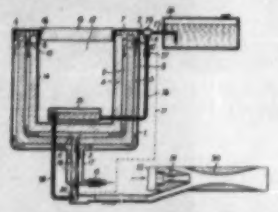
1. A refrigeration system comprising, the combination of, a compressor, a condenser-receiver unit which is adapted to condense refrigerant and includes means to pass water into heat exchange relationship with the refrigerant and means to receive compressed refrigerant from said compressor and also to store liquid refrigerant, a heat transfer unit which is adapted to subject air to a heat transfer operation with respect to refrigerant, means including a pressure reducer to deliver liquid refrigerant from said condenser-receiver unit to said heat transfer unit at a reduced pressure and to provide for the flow of gaseous refrigerant therefrom to said compressor, an auxiliary evaporator which is connected to receive liquid refrigerant from said condenser-receiver unit at a reduced pressure and including means to pass water into heat exchange relationship with the refrigerant, means including a solenoid valve which is opened to connect said auxiliary evaporator to said compressor, means including solenoid operated valve which may be operated to connect the gas outlet from said compressor directly to said heat transfer unit and to close the connection between said heat transfer unit and said compressor, means to direct a liquid refrigerant from said heat transfer unit to said condenser-receiver unit, and water flow control means to selectively control the supplying of water to said condenser-receiver unit or to said auxiliary evaporator.

2,755,638. AIR REFRIGERATING SYSTEM, IN PARTICULAR FOR AIRCRAFT COCKPITS. Paul Sevin, Clamart, France, assignor to Societe Nationale de Constructions Aeronautiques du Sudouest (S. N. C. A. S. O.), Paris, France, a French company.



1. A refrigerating system for use in an aircraft cabin enclosed by an outer wall and by an inner wall having side, top and bottom portions spaced from said outer wall to define therewith an air space coextensive with at least a major part of said top and side portions, comprising means for generating cooling air, means for conducting said cooling air into the interior of said cabin at points vertically spaced in one direction from the horizontal median plane of said cabin, outlet passageways passing through said inner wall and formed at points vertically spaced in the opposite direction from said median plane and exhaust channel means leading from a point of said air space peripherally spaced from said passageways to a discharge orifice in said outer wall, the arrangement being such that the cooling air conducted into said cabin discharges therefrom through said passageways and is caused to flow through said air space to said exhaust channel means in a direction substantially opposite to that in which the cooling air is flowing from its points of admission into the cabin to the said outlet passages.

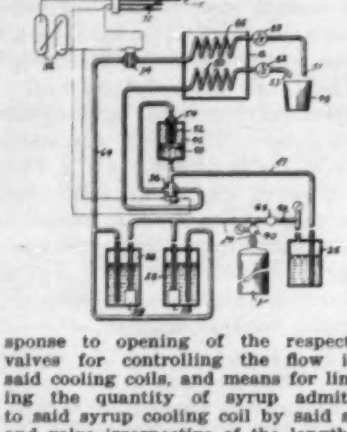
2,755,639. EVAPORATING DEVICE, PARTICULARLY FOR REFRIGERATORS IN MOTOR VEHICLES. Fedor Straznicky, Solna, Sweden.



1. Refrigeration apparatus including an internal combustion engine provided with a carburetor, an evaporation device confining an evaporation chamber and a liquid chamber, the evaporation device having a storage space bordered by refrigerated walls of the device, a liquid absorbent material in said evaporation chamber in a position to receive liquid for evaporation from said liquid chamber, means for conducting air to said evaporation chamber past said liquid absorbent material to entrain vapor therefrom, and means to connect the evaporation chamber with the air intake of said engine at a point in advance of said carburetor.

2,755,979. BEVERAGE DISPENSING APPARATUS. David E. Lawson, Leo Urban and Thomas G. Crider, Cleveland, Ohio, assignors to Hupp Corp.

6. In a self-contained drink dispensing machine, a syrup receptacle, a carbonated water receptacle, means for supplying CO_2 gas under pressure to said receptacles, a syrup cooling coil, a water cooling coil, a first valve for controlling the flow of water from said water receptacle to said water cooling coil, a second valve for controlling the flow of syrup from said syrup receptacle to said syrup cooling coil, a syrup dispensing conduit connected to the outlet of said syrup cooling coil, a carbonated water dispensing conduit connected to the outlet of said water cooling coil, check valves in each of said conduits arranged to open in response to opening of the respective valves for controlling the flow into said cooling coils, and means for limiting the quantity of syrup admitted to said syrup cooling coil by said second valve irrespective of the length of time said second valve remains open.



2,755,987. COMPRESSOR CAPACITY CONTROL. Karl M. Gerteis, Syracuse, N. Y., assignor to Carrier Corp.

1. In combination with a reciprocating compressor including a cylinder head, a suction manifold, a member separating the head from the manifold, said member having an opening therein, a seat on said member and disposed about the opening, a power element which includes a sleeve and a piston in said sleeve adapted to rest on said seat to close said opening, said piston being of such dimensions as to overlie the seat, the exterior of said piston being subject at all times to suction pressure acting on the exterior area inside the seat and discharge pressure acting on the exterior area outside the seat, means to apply pressure to the interior of the piston, said means applying discharge pressure to the interior of the piston at predetermined intervals to overcome the combined forces acting on the exterior of the piston to move the piston to close the opening, and said means applying suction pressure to the interior of the piston at other predetermined intervals so that the combined forces acting on the exterior of the piston will be greater than the forces acting on the interior of the piston to permit movement of the piston away from the opening.

DESIGNS

178,319. CABINET FOR A MACHINE FOR MAKING AND FLAKING ICE. Rubin Chaplik and Jesse J. Shelley, Chicago, Ill. Application May 12, 1955, Serial No. 35,947. Term of patent 14 years. (Cl. D67—2.)

(Continued on next page)

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For more information about products advertised on this page use Information Center, page 20.

PATENTS

(Continued from preceding page)

Week of July 31

2,756,470. STERILIZING DRINKING FOUNTAINS. Michael Sawchuk, Scarboro, Ontario, Canada. Application March 2, 1953, Serial No. 339,562. 6 Claims. (Cl. 21—102.)

1. A drinking fountain comprising, a casing having an open drainage basin and an enclosed head having an opening therein, a fountain element having a discharge nozzle mounted for movement with respect to said casing and through said casing in said head to dispose said nozzle in a position interiorly of said head and also in a position exteriorly of said head, said nozzle when exteriorly of said head being adapted to discharge into said basin, means for moving said fountain element between said interior and exterior positions, a source of germ destroying media within said head mounted to impinge on said nozzle when the latter is moved to a position interiorly of said head.

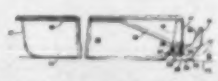
2,756,504. VENTILATING ATTACHMENT. Mead E. Robertson, Stoughton, Wis. Application Jan. 12, 1955, Serial No. 481,401. 13 Claims. (Cl. 62—102.)

1. In a refrigerated compartment, the combination of a vertical flat plate cooling unit and an air collecting and blowing device comprising an upwardly extending partition disposed with its upper edge near and parallel to a horizontal edge of said cooling plate, a floor portion extending outwardly from the bottom edge thereof and a wall portion extending upwardly from the outer edge of said floor portion adapted to conjointly define a channel adapted to receive air flowing vertically along a wall of said flat plate, a plenum chamber connected to one end of said channel and a duct connected to said plenum chamber.

2,756,565. ICE TRAY. Lloyd M. Keighley, Dayton, Ohio, assignor to General Motors Corp., Detroit, Mich., a corporation of Delaware. Application Feb. 1, 1954, Serial No. 407,343. 1 Claim. (Cl. 62—108.5.)

An ice tray for containing a liquid to be frozen and adapted to be disposed upon a support of a freezing compartment of a refrigerator comprising, a stamped sheet metal pan having upstanding impervious side and end walls, a formed over top rim, an extension integral therewith and depending from one of said end walls, said integral extension including a main portion spaced from said one end wall of the pan and a lower edge portion, said lower edge portion of said integral extension being widened laterally with respect to the main portion thereof to provide opposed projections at said lower edge portion, said widened lower edge portion of said integral extension being crimped back upon itself to provide a double wall thickness therealong for reinforcing said projections and forming a substantially rounded bearing surface at the bottom thereof, a substantially U-shaped handle on said pan having flat legs disposed perpendicular to said support, each end of the flat legs of said U-shaped handle having means adapted to receive the opposite lateral projections on the integral extension of said pan, the legs of said handle being bent toward one another over said opposed projections to cause said means to pivotally mount said handle thereon, at least one of the legs of said handle having a cam-like portion thereon adapted to rest upon the support for normally holding the bight portion of said handle intermediate legs thereof in an upright postion spaced above said support, and said handle being movable about its pivotal mounting to cause said cam-like portion thereof to apply a force between said support and said rounded bearing surface on the projections of said integral extension of the pan for elevating the handle end of said tray relative to the support.

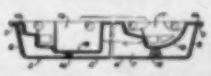
2,756,566. ICE TRAY. Frederick W. Sampson and Arthur J. Frei, Dayton, Ohio, assignors to General Motors Corp., Detroit, Mich., a corporation of Delaware. Application Feb. 1, 1954, Serial No. 407,344. 3 Claims. (Cl. 62—108.5.)



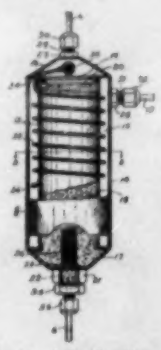
1. An ice tray for containing a liquid to be froben and adapted to be disposed on a support in a freezing compartment of a refrigerator comprising, a stamped sheet metal substantially flat bottom pan having upstanding impervious walls and an extension on the outside thereof formed integral with one of its end walls depending from the top thereof in spaced relation thereto, the lower edge of said intergal depending extension terminating at a point spaced above the bottom of said pan, said internal extension being provided with horizontally spaced apart openings therein above its lower edge, that part of said integral extension intermediate the openings therein and its lower edge being elongated vertically a greater distance than the vertical elongation of said openings to provide relatively tall bearing portions therebelow for a lever adapted to be pivotally mounted upon said tray, a substantially U-shaped lever on said integral depending extension, the bight portion of said U-shaped lever intermediate the legs thereof forming a handle therefor, each end of the legs of said U-shaped lever having a slot therein providing opposed jaws adjacent said slot, one of said opposed jaws on the legs of said U-shaped lever projecting through the openings in said depending extension on said pan with the other of said opposed jaws being located below the lower edge of said extension, at least the end of one of the opposed jaws on each leg of said lever being pinched to the end of the other opposed jaws to close said slots and pivotally lock said lever upon said depending extension against removal therefrom, said lever having a portion of its legs normally engaging said support for holding the lever in an upstanding operative position, said leg portions of said lever forming a force multiplying means between said lower edge of said integral depending extension on the pan of said support, and said lever when moved about its pivotal mounting by said handle applying force to said relatively tall bearing portions on said integral depending extension to elevate said pan relative to said support.

2,756,567. FREEZING TRAY WITH Molds. Raymond R. Martin, Albion, Mich. Application Dec. 8, 1952, Serial No. 324,641. 3 Claims. (Cl. 62—108.5.)

1. A freezing tray of the character described, comprising a flexible but relatively firm construction pan section with a bottom which is of selectively depressable construction, a flexible cover section fitting and permanently closing the top of said pan section, said cover section having depressed portions extending down toward the bottom of said pan section and constituting individual molds, and an individual supporting means for the bottom of each of said molds, said supporting means extending between said mold bottoms of said cover section and said pan section bottom, whereby said individual supporting means acts not only to support said individual molds but also to transmit selective inward flexing of said pan section bottom to the bottom of said molds to facilitate selective removal of the molded articles, said supporting means for said individual molds comprising individual supporting pillars of substantially truncated cone shape with the base of same on said pan section, at least a portion of each of said pillars being integral with one of said sections and secured to the other of said sections.

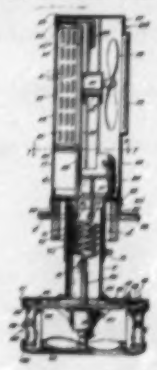


2,756,568. APPARATUS FOR DEHYDRATING REFRIGERANTS. Daniel Jordan, Pittsburgh, Pa. Application March 22, 1955, Serial No. 496,991. 1 Claim. (Cl. 62—117.85.)



A refrigerant dehydrating apparatus for a mechanical refrigeration system including a liquid line and a suction line comprising, in combination, an inner casing for containing the dehydrating material, an outer shell enclosing said casing and being arranged concentrically in spaced relation to the latter to provide a chamber between said casing and said shell, a forward end head and a rearward end head secured to respective ends of said casing and of said shell and providing sealing end walls for said chamber, an end screen covering the forward end of said casing, a filtering member mounted in said casing inwardly of said end screen, said forward end head having a detachable connection with the liquid line, a collar having a comparatively large bore fixed to the outer end of said rearward end head for allowing the removal and replacement of dehydrating material in said casing, a bushing having a detachable screw thread connection in said bore and with the liquid line, a screen carried at the inner end of said bushing and projecting into said casing, a capillary tube having open ends mounted in said chamber and being secured in said forward end head, the inlet end of said tube extending into said forward end head and carrying a screen, said tube conveying dehydrating refrigerant at a predetermined rate from said casing into said chamber, and a suction pipe communicatively connected with said chamber and with the suction line to draw the refrigerant from said chamber to create a constant flow of the refrigerant through said chamber to chill said dehydrating material for increasing the absorbent capacity of the latter.

2,756,569. AIR CONDITIONING APPARATUS. Richard W. Kritzer, Chicago, Ill. Application Jan. 28, 1955, Serial No. 484,696. 3 Claims. (Cl. 62—129.)

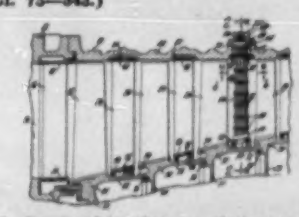


1. The combination with an assembly of refrigerating apparatus, comprising: a motor-driven compressor, a condenser including a coil for refrigerant and a motor-driven air impeller, and a box-like casing in which said refrigerating apparatus is housed, provided with a baseplate mounted on the roof of a building and on which said casing is supported in an upstanding position above said roof, and with inlet and outlet openings through which outside air will be forced by said impeller; and an assembly of air-cooling apparatus inside of said building including an evaporator, a motor-driven impeller for forcing air through the evaporator, and a cage provided with a top over the evaporator; of a supporting structure for the air-cooling apparatus extending through said roof, including slidably and telescopically connected tubular sections secured to the baseplate of the casing for the refrigerating apparatus and to the top of the cage respectively; and refrigerant conduits between the evaporator and the refrigerating apparatus, extending through said adjustable tubular sections.

2,756,570. REFRIGERATION UNIT FOR COOLING AND DISPENSING BEVERAGES. Ronald Gale, Elgin, Ill. Application May 21, Serial No. 289,136. 6 Claims. (Cl. 62—141.)

1. In a beverage cooling and dispensing cabinet, a refrigeration unit mounted in the cabinet for cooling and supporting bottled beverages of the type in which the bottle is provided with a bead on the neck thereof, said unit comprising laterally spaced and longitudinally extending, depending coils having vertically spaced passages therethrough for the flow of a refrigerant and laterally projecting fins about each passage, and longitudinally extending, opposed flanges on the adjacent coils providing horizontally disposed shoulders adajacent the upper end of the coils and spaced apart to loosely receive therebetween the neck of aligned bottles and with the bead on the neck only of each bottle resting on these shoulders whereby to support the bottles between the adjacent coils, the fins of adjacent coils projecting into close proximity to the neck and sides of each bottle depending therebetween to effect rapid cooling of the bottles.

2,756,596. COMPRESSOR TEMPERATURE SENSING SYSTEM. Jean R. Nelson and Robert L. Jahnke, Indianapolis, Ind., assignors to General Motors Corp., Detroit, Mich., a corporation of Delaware. Application March 14, 1952, Serial No. 276,644. 10 Claims. (Cl. 73—343.)



1. In combination, a stator comprising a casing, a rotor mounted for rotation within said casing, at least one stator stage comprising a plurality of stator vanes supported from said casing, and means for measuring the temperature within said casing comprising a temperature sensing device mounted in the position of one of said stator vanes of said stator stage, the shape of said temperature sensing device conforming generally to that of a stator vane replaced thereby.

(To Be Continued)

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POSITIONS WANTED

COMMERCIAL REFRIGERATION and air conditioning sales representative, college graduate, 44, last seven and one half years with Frigidaire, service technical and instructional background, desires position representing leading manufacturer serving West Coast. H. R. BURT, 928 Contra Costa Drive, El Cerrito, California.

AGGRESSIVE MANUFACTURER'S representative with engineering background and a proven merchandising sales record, covering inside the Middle Atlantic States, desires one additional volume producing line. Reply BOX A5700, Air Conditioning & Refrigeration News.

POSITIONS AVAILABLE

ESTABLISHED MANUFACTURERS' representative calling on refrigeration men, to sell complete line of commercial refrigeration in Michigan and Indiana. THE C. SCHMIDT COMPANY, 1712 John Street, Cincinnati 14, Ohio.

MANUFACTURERS REPRESENTATIVES: Opportunity for association with a firm manufacturing quality products since 1945. We have territories available for men experienced in selling central plant conditioners, multizone conditioners and coils. Write THERMAL ENGINEERING CORPORATION, P. O. Box 13254, Houston 19, Texas.

WANTED—TWO district sales supervisors; one to be located in San Francisco and one in the South to supervise sales offices of manufacturer of heating and air conditioning equipment on West Coast and Southern areas. Send complete information of education, experience and salary requirements to BOX A5681, Air Conditioning & Refrigeration News.

SALES REPRESENTATIVE wanted, age no barrier, for sale of new development in the air conditioning field to jobbers. This new product is one of the three major components of the refrigeration cycle and will completely change existing conventional field practice. It is extremely saleable and will reward a hard-hitting individual with above average earnings on a liberal commission basis. Exclusive protected territories. Previous experience in air conditioning, refrigeration, plumbing, or heating industries desirable but not essential. Engineering background helpful. The company offering this product is now the leading manufacturer of one of the three major components of the refrigeration system. Write now, giving us personal details as well as present activity to BOX A5629, Air Conditioning & Refrigeration News.

SALES ENGINEER—familiar with refrigeration and heat exchangers to call on refrigeration, air conditioning, and allied companies in Chicago and New York areas. Excellent opportunity with large industrial company; salary and expenses, car furnished. Send complete details to BOX A5702, Air Conditioning & Refrigeration News.

ENGINEERS — COLLEGE graduates with experience for development, design and production engineering work on heat pump air conditioning systems and components. Unusual opportunity in growth business with substantial company located in northern New Jersey, metropolitan area. Salary commensurate with experience. Write details of background and experience in confidence to: BOX A5705, Air Conditioning & Refrigeration News.

EQUIPMENT FOR SALE

1 Frick 9' x 10", 8 pass, 31 tube, ammonia-brine chiller complete with all accessories. Used 4 months. FOB St. Petersburg, Florida $285.00. 1 York 16' x 14", 6 pass, 240 sq. ft. ammonia condenser used on cooling tower. FOB St. Petersburg $295.00. JONES, INC., Box 640-A, St. Petersburg, Florida.

NOW AT your local wholesaler guaranteed 20 foot lift new Kesco King Size 1957 automatic condensate water disposal pumps. 3 inches water in tank starts pump. Designed for air conditioners, ice cube bins, drinking fountains. Wholesalers, for 1957 literature, write to KESCO PRODUCTS CORP., Box 84, Springfield Gardens 13, New York.

BUSINESS OPPORTUNITIES

WANTED: RELIABLE and capable distributors for our air conditioning and refrigerating equipment. Good territories available. Full line of compressors, condensers, coils, coolers, controls, valves and fittings, pressure vessels, etc. Contracts include repairs and spare parts for equipment now in use. Profitable account. Address Department B, FRICK COMPANY, Waynesboro, Pennsylvania. Refrigeration Engineering Pioneers since 1882.

AVAILABLE THROUGH purchase or merger. Established air conditioning and heating wholesaling firm. Annual sales one-half million. Located major city in Southern California. Transfer of franchises contingent upon acceptance by manufacturers based upon trade reputation, financial strength. Principals only. BOX A5693, Air Conditioning & Refrigeration News.

FOR SALE: Commercial refrigeration and air conditioning contracting and service company doing over $300,000.00 per year, nearly one-third service. Long established profitable operation; midwest; major franchises; city less than 200,000. Owners desire to devote time to other interests. BOX A5704, Air Conditioning & Refrigeration News.

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ATTENTION SERVICEMEN: Send for free circulars and bulletins on refrigeration parts and equipment. Real money saving values: WALTER W. STAHR; 2833 Lincoln Avenue, Chicago 13, Illinois.

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Immediate Requirements for Field Sales and Service Engineers, Application Engineers, Process Engineers, Service Instructors, Service Supervisors, Service Publications Writers.

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AIR CONDITIONING & REFRIGERATION NEWS

For more information about products advertised on this page use Information Center, page 20.

Air Conditioning Predictions--

(Concluded from Page 1, Col. 5)

picture looks somewhat like this. Room air conditioners: 1,600,000 units valued at $440 million. Central residential air conditioners: 250,000 units valued at $375 million (1957 is the year when retail dollar volume of residential equipment will approach that for room air units, Wampler said). Self-contained equipment: $238 million. Applied systems: $1,190,000,000. Heating installations adaptable to air conditioning, $650 million. All other, $600 million. Total, nearly $3.5 billion.

PREDICTIONS FOR 1961

Looking ahead five years from this date (1961) Wampler predicted the following. Room air conditioner volume will have climbed to about $600 million at retail. Self-contained will have grown to approximately $300 million. Residential volume will be moving ahead of the $900 million mark. Applied systems will account for some $1,600,000,000; heating systems adaptable to air conditioning, $750 million; all other $750 million. Total volume five years hence will be in the neighborhood of $5 billion.

The Carrier board chairman then discussed in detail the market situation for some of the divisions of the industry:

"In 1956, the industry began to move toward greater stability. Despite a cool early summer in some parts of the country, total sales at retail for the year appear to be about 1,550,000 units. Inventories are up slightly, but not dangerously. The number of brands has dropped to about half.

ROOM UNIT PRICE PICTURE

"The price picture on room air conditioners is extremely significant. Distress selling forced some price reduction in the last two years. But I would not like to think that current prices are a result simply of distress selling. Part of this picture lies in the obvious economics of high-volume production—part of it in volume marketing which makes it possible to reduce the mark-up on the individual unit."

In discussing the growth of the central residential air conditioner market from 50,000 systems in 1953 to an estimated 175,000 systems in 1956, Wampler said:

"We have seen over the past year or two something of a change in this market. Where originally the great majority of such systems were installed in new homes at the time of construction, today it is probable that nearly half are going into existing residences. This is due to several factors:

"1. People have been exposed to central air conditioning in the new homes of friends and neighbors and want it.

"2. Special equipment for existing homes has been developed which has reduced the cost.

"U. S. Bureau of Labor statistics on characteristics of new housing, taken in the first quarter of 1956, showed that about 7% of the new homes started included complete air conditioning. In the South this figure was 10%. In terms of heating, another two-thirds had forced warm-air systems with ducts, thus permitting conversion.

"Over-all, 18% of the homes costing $20,000 and over are equipped with air conditioning at the time of construction. In the $12,000 to $15,000 class and the $15,000 to $20,000 class the present percentage is seven and six, respectively.

"To take another look at the South, 43% of all homes costing $20,000 and over are equipped with air conditioning. Eleven per cent of the $15,000 to $20,000 homes and 13% of the $12,000 to $15,000 are so equipped.

"These figures indicate that the opportunities for home air conditioning are still only at their initial stage. But every home built and equipped for complete comfort today can be expected to reduce the resale price tomorrow of those homes not so equipped.

"It is my estimate that about 250,000 central systems will be installed during the coming year at a retail value of about $375 million. The percentage of homes built with complete air conditioning installed can thus be expected to climb to more than 10% of all new single family dwelling construction.

"By 1961, I would estimate that about 600,000 residences will be equipped annually with central air conditioning at a retail value of about $900 million. This means, assuming an even split between installations in new homes and existing ones, and maintenance of the present rate of 1 million starts a year, that about 30% of all new residences will be equipped for complete comfort at the time of construction.

"My forecast for 1966—10 years hence—is that by this time some 1,200,000 central systems will be installed annually in residences, at a value of about $1.8 billion at retail," he said.

Turning to the heat pump, Wampler predicted that about 10,000 packaged heat pump systems will be installed in 1957, at a retail value of about $30 million. By 1961, he said, this should have grown to about 30,000 installations annually at about $90 million.

Wampler said that there had been a marked advance this year in industrial air conditioning. In Carrier alone, dollar volume of orders booked for industrial air conditioning has jumped 124% in 1956 as compared to 1955.

It was found that process air conditioning has increased by 54%, but that done for the purposes of greater efficiency has grown more than 255%.

Haag Appointment-

(Concluded from Page 1, Col. 2)

devices for automotive market.

Haag, with 20 years' experience in the refrigeration field, returns to the industry after an absence of five years during which he was sales manager of commercial products of Jack & Heintz, Inc., Cleveland. Previously, he was sales manager of Tranter Mfg. Co. and eastern manager of Fedders Mfg. Co.

Raufeisen Named--

(Concluded from Page 1, Col. 5)

gaged in refrigeration consulting work.

In the U. S. Raufeisen has been employed in numerous responsible capacities, all concerned with compressor design, system design, and refrigeration package units. He has had a total of over 25 years' experience in the refrigeration field.

THE NEW UNARCO DYNA-PAC

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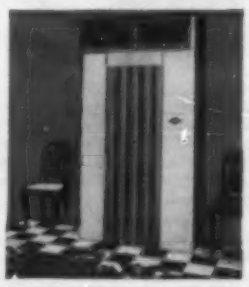

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